Always report or correct any conditions that may result in injury to personnel if operation is to be continued.

Before starting the engine or operating any of the crusher components, see that no loose bars, tools, or parts are laying in or on any part of the equipment, as they could cause serious damage to the equipment or bodily injury to personnel.

Before attempting to operate the equipment, make certain the roll crusher and the sources of power are properly grounded. Death by electrocution could result from improperly grounded equipment.

Never fill the fuel tank while the engine is running. Be sure there are no open flames which may ignite the fuel vapor while filling the tank. Always provide a metal-to-metal contact between the fuel container and the fuel tank to avoid igniting the fuel vapors with a static spark.

Keep catwalks and decks free of grease, oil, and mud to prevent slipping and falling.

When operating the crusher in an inclosed area, exhaust gases must be piped to the outside. The exhaust gases contain carbon monoxide which can be fatal if inhaled.

When servicing batteries, do not smoke or use open flame in the vicinity. Batteries generate hydrogen, a highly explosive gas.

Do not operate the crusher with belt guards removed.

Make certain that all personnel are clear of the crusher before engaging the clutch or starting any of the components. Serious injury or death could result.

DURING OPERATION

Always report or correct any conditions that may result in injury to personnel if operation is to be continued.

Do not continue operation of the equipment unless the roll crusher and the source of power are properly grounded. Death by electrocution could result from improperly grounded equipment.

Keep catwalks and decks free of grease, oil, ice and mud to prevent slipping and falling. Use handrails to avoid falling from the crusher or into machinery.

Keep clear of moving machinery at all times to prevent bodily injury.

Stop operation when cleaning, adjusting, or lubricating the components of the roll crusher.

Use extreme caution in removing the radiator cap from an over-heated engine.

Never fill the fuel tank while the engine is running. Be sure there are no open flames which may ignite the fuel vapor while filling the tank. Always provide a metal-to-metal contact between the fuel container and the fuel tank to avoid igniting the fuel vapors with a static spark.

Ether is highly explosive and toxic. Handle ether capsules with extreme caution to prevent rupture until installed in the capsule chamber to avoid fire, explosion, and personal injury.

AFTER OPERATION

Always report or correct any condition that may result in injury to personnel if operation is to be continued.

Stop operation when cleaning, adjusting, or lubricating the components of the roll crusher.

HANGE
o. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *12 September 19*

Operator's Manual

CRUSHER, ROLL: DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED, PNEUMATIC TIRES; 75 TON PER HOUR (EAGLE CRUSHER MODEL 5230B) FSN 3820-788-5999 (EAGLE CRUSHER MODEL 5230D) FSN 3820-876-7876 COMPONENT OF CRUSHING AND SCREENING PLANT, DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED 75 TON PER HOUR

M 5-3820-205-10/1, 24 January 1964, is anged as follows:

ne title is changed as shown above.

ge. 2. In paragraph 1a, line 3, after "5230B," d "Model 5230D."

Paragraph 1d is superseded as follows:

d. The reporting of errors, omissions, and commendations for improving this publication by the individual user is encouraged. Re- MPP, 4300 Goodfellow Boulevard, St. L MO 63120.

Paragraph 2 is superseded as follows:

2. Forms and Records

DA forms and procedures used for equip maintenance will be only those prescribe TM 38-750, Army Equipment Record P dures.

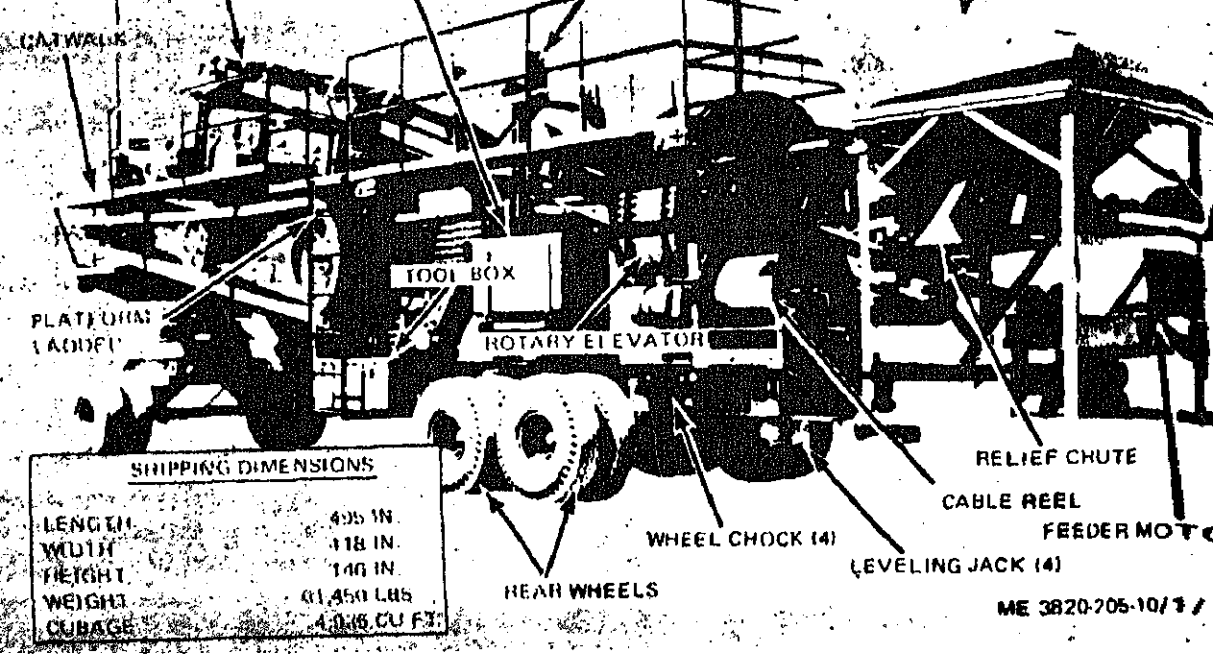


Figure 1.1. Roll crusher—left rear, three-quarter view (Model 5230D).

ge 5. In paragraph 4*b* (1), line 2, after 30B," add "and 5230D."

ge 6. In paragraph 4*b* (2), line 2, after 85," add (Model 5230B) and 6009-P (Model 0D)."

n paragraph 4*b* (5), line 2, after "4517," add Model 5230B) and 4517A (Model 5230D)."

n paragraph 4*b* (6), line 2, after "4601," add odel 5230B) and 4601B Model 5230D)."

In paragraph 4*b* (7), line 2, after "5031," "(Model 5230B) and 5031A (Model 5230D)."

In paragraph 4*b* (8), line 2, after "3028 add "(Model 5230B) and 4715 (Model 5230D

In paragraph 4*b* (10), line 2, after "593 add "(Model 5230B) and 5930-B (Mo 5230D)."

Page 7. Paragraph 4*b* (21) is superseded follows:

(21) *Dimensions and weights.*

Model	*5230B*	*5230D*
rall length	495 in.	495 in.
rall width	120 in.	118 in.
rall heights	143 in.	146 in.
ght	59,500 lb.	61,450 lb.
age	4,944 cu. ft.	4,935 cu. ft.
ter of gravity	72 in. above ground level, 89 in. forward between center of bogie wheels.	74 in. above ground level, 87 in. for between center of bogie wheels.

Table 1. Maintenance and operating supplies

(1) Component application	(2) Federal stock number	(3) Description	(4) Quantity required for initial operation	(5) Quantity required for 8 hrs operation	(6) Notes
CRANKCASE		OIL, LUBRICATING: 55-gal. drum as follows:			(1) Includes quantity of to fill engine oil s tem as follows:
	9150-265-9436 (2)	OE 30	24 qt.	(3)	Crankcase—18 q
	9150-265-9429 (2)	OE 10	24 qt.	(3)	Oil filter—6 qts
	9150-242-7604 (2)	OES	24 qt.	(3)	
TANK, FUEL		FUEL OIL, DIESEL: Bulk as follows:			(2) See C9100-IL for ad tional data and r uisitioning procedu
	9140-286-5283 (2)	DF-A	100 gal (5)	76 gal (6)	
	9140-286-5286 (2)	DF-1	100 gal (5)	76 gal (6)	(3) See LO 5-3820-205-2
	9140-286-5294 (2)	DF-2	100 gal (5)	76 gal (6)	for grade applicat
ENGINE START-ING AIDS.	2910-355-6377	CAPSULE, METAL: Pressure primed (1M0-10).	1 (8)		and replenishm intervals.
RADIATOR		WATER: ANTIFREEZE: 55-gal. drum as follows:			(4) Use oil as prescribe first item.
					(5) Tank capacity
	6850-243-1990	Ethylene glycol			(6) Average fuel consum
	6850-174-1806	Compound arctic			tion is 9.5 gals. hour of continu operation.
GEAR ASSEMBLY, CONVEYOR DRIVE.		OIL, LUBRICATING: (4)	5 qt	(3)	
RETURN CON-VEYOR GEAR REDUCER.		OIL, LUBRICATING: (4)	4 qt	(3)	(7) Quantity indicated the minimum quired for one ea Start when the te perature is bel 40° F.
ELEVATING WHEEL GEAR REDUCER.		OIL, LUBRICATING: (4)	2 qt	(3)	
GEAR ASSEMBLY, FEEDER DRIVE.		OIL, LUBRICATING: (4)	2 qt	(3)	
CRUSHER FRAMES		OIL, LUBRICATING, GEAR: 55-gal. drums as follows:			
	9150-577-5848	GO 140	92 qt	(3)	
	9150-577-5845	GO 90	92 qt	(3)	
	9150-257-5443	GOS	92 qt	(3)	
GREASE POINTS		GREASE, AUTOMO-			

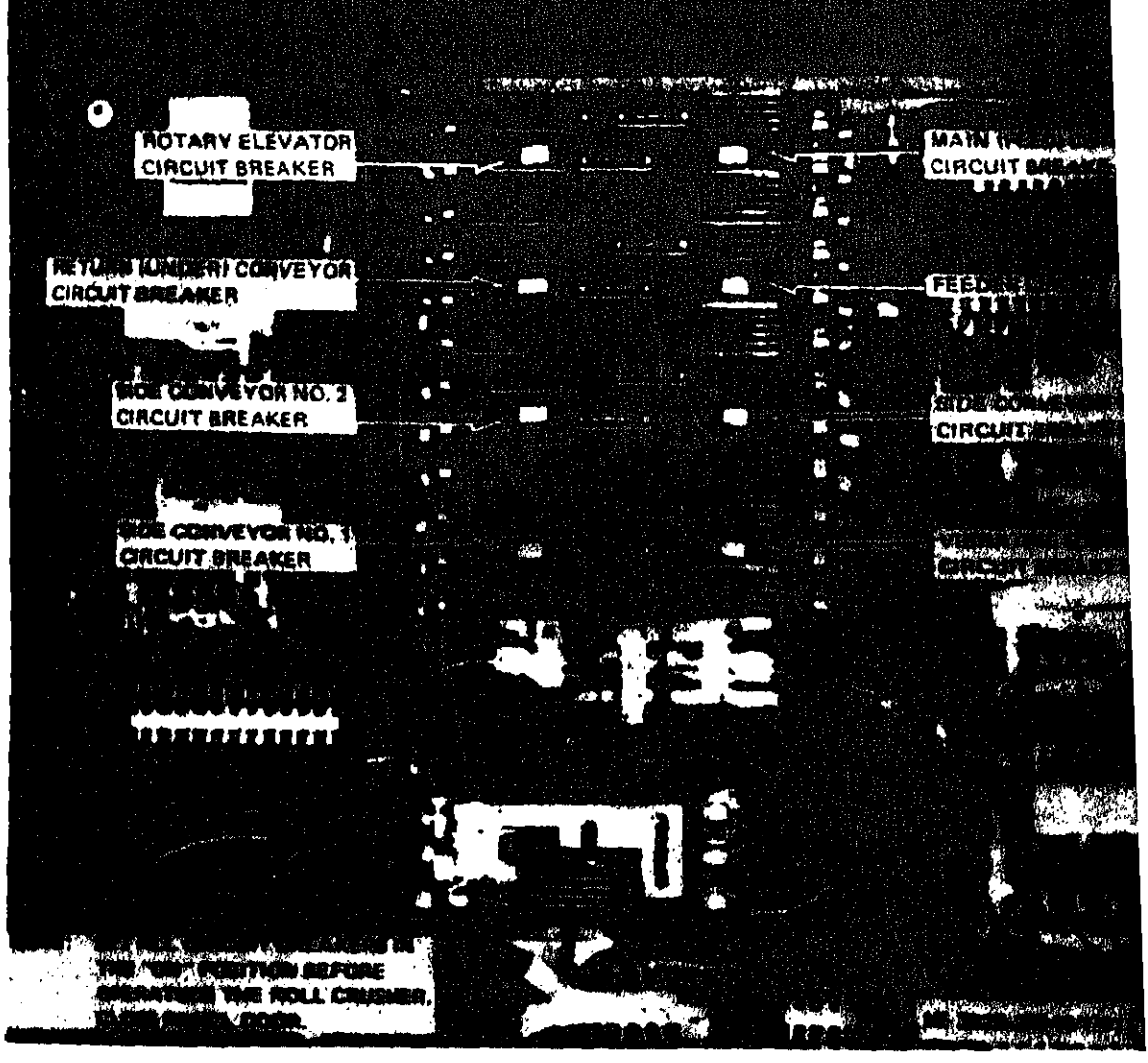
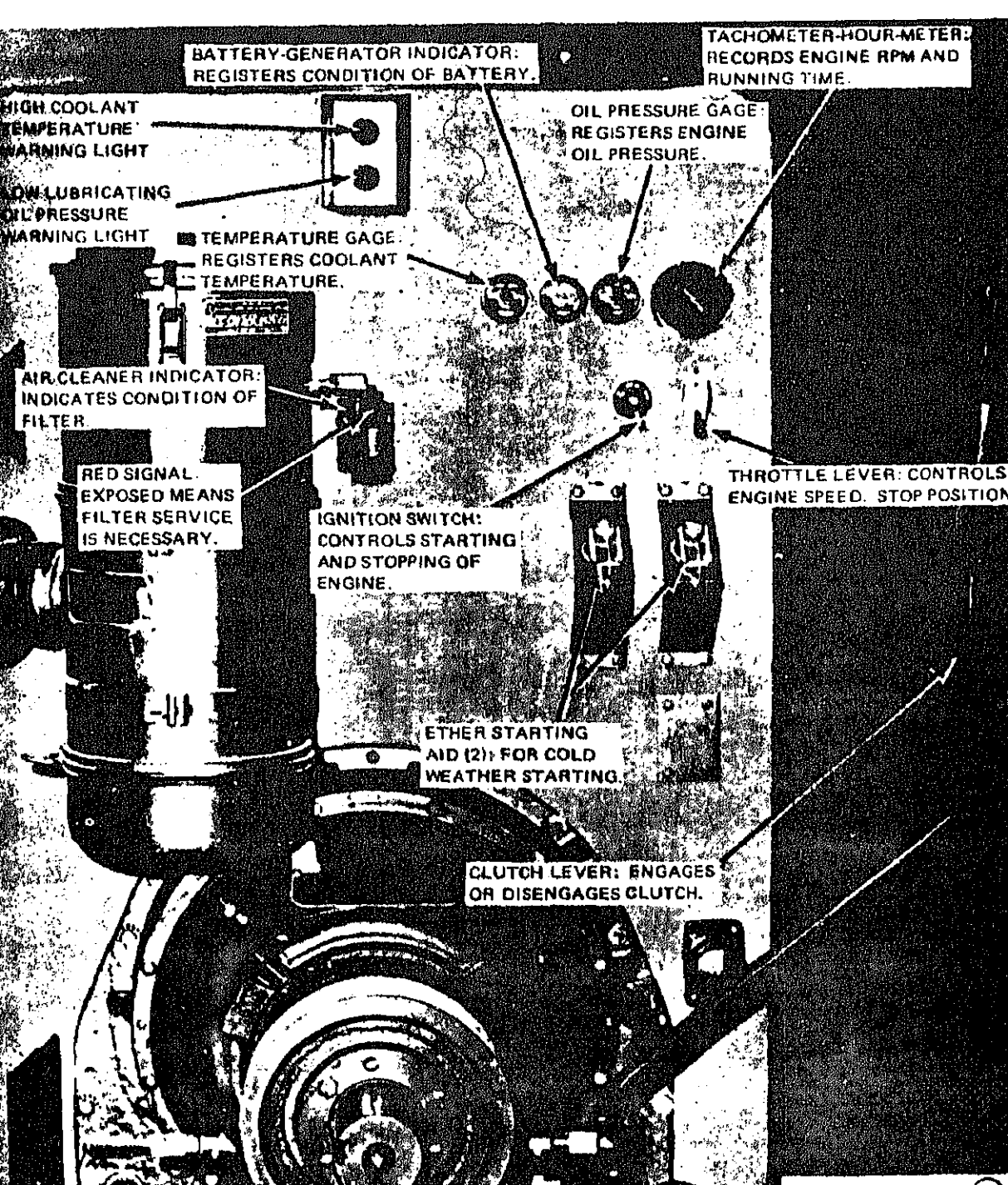


Figure 11.1. Actuating the roll crusher electrical system (model 5230D).


BATTERY-GENERATOR INDICATOR: REGISTERS CONDITION OF BATTERY.
TACHOMETER-HOUR-METER: RECORDS ENGINE RPM AND RUNNING TIME.
HIGH COOLANT TEMPERATURE WARNING LIGHT
OIL PRESSURE GAGE: REGISTERS ENGINE OIL PRESSURE.
LOW LUBRICATING OIL PRESSURE WARNING LIGHT
TEMPERATURE GAGE: REGISTERS COOLANT TEMPERATURE.
AIR CLEANER INDICATOR: INDICATES CONDITION OF FILTER.
RED SIGNAL: EXPOSED MEANS FILTER SERVICE IS NECESSARY.
THROTTLE LEVER: CONTROLS ENGINE SPEED. STOP POSITION
IGNITION SWITCH: CONTROLS STARTING AND STOPPING OF ENGINE.
ETHER STARTING AID (2): FOR COLD WEATHER STARTING
CLUTCH LEVER: ENGAGES OR DISENGAGES CLUTCH.

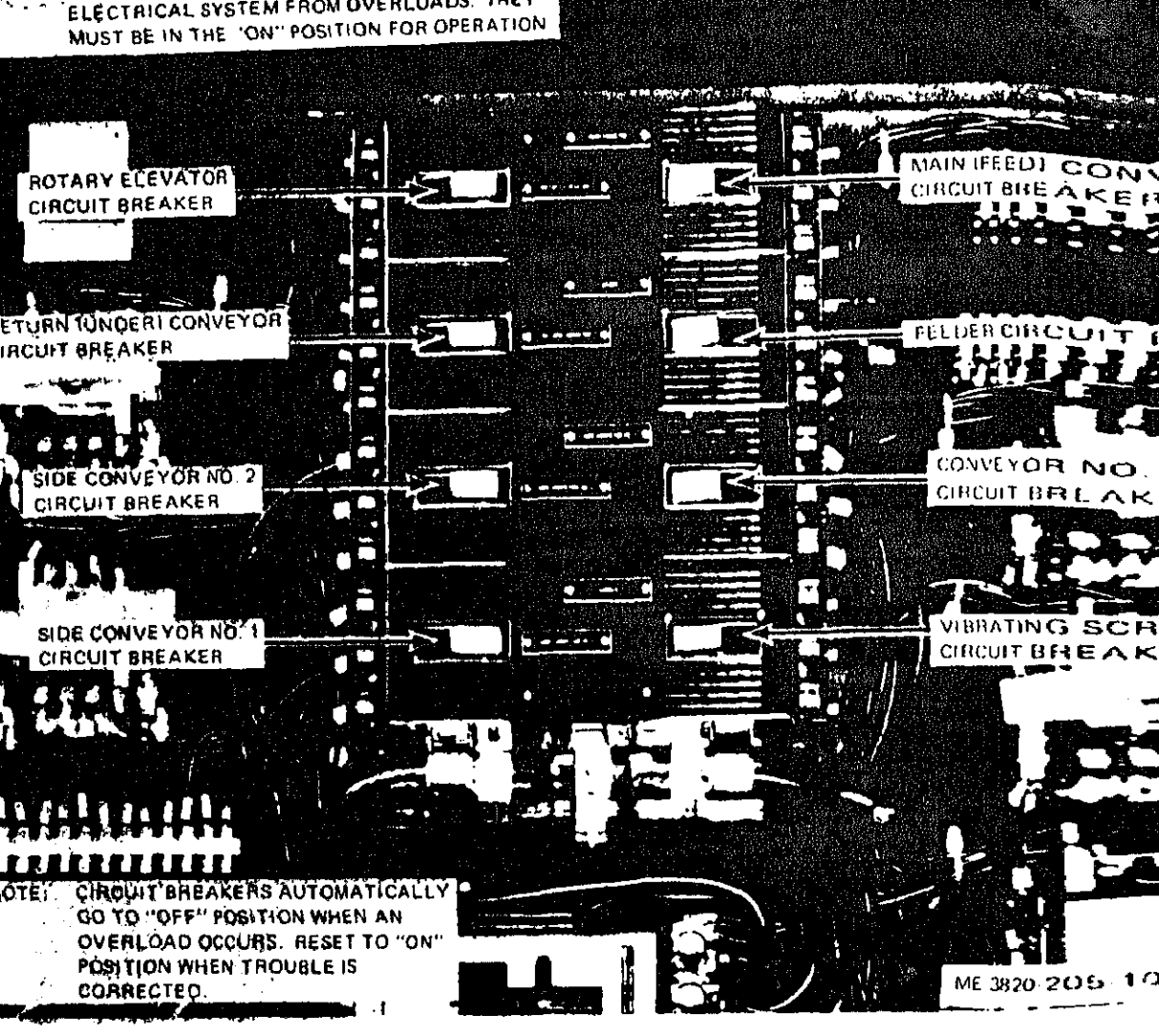
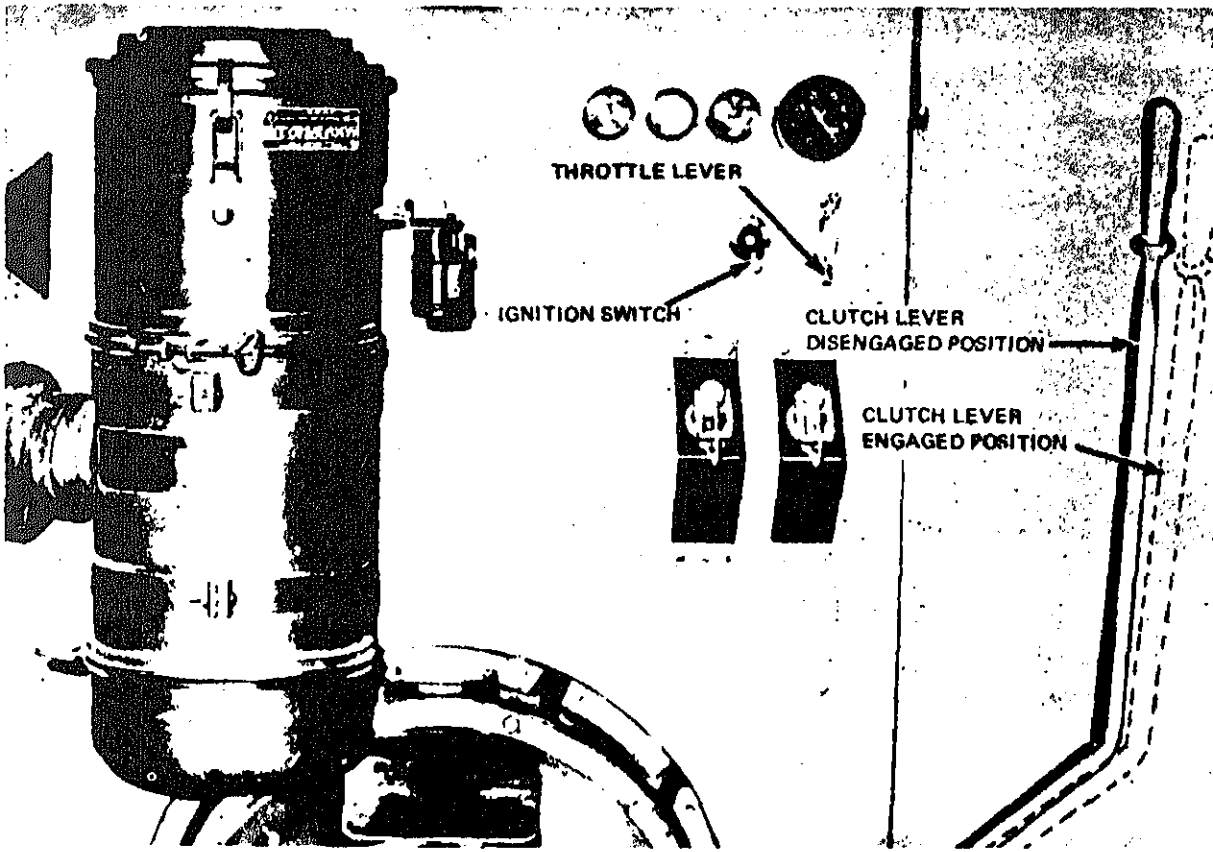


Figure 12.1 (4). Controls and instruments (model 5230D).

CAUTION: DO NOT CRANK THE ENGINE FOR MORE THAN 30 SECONDS AT A TIME. ALLOW ONE MINUTE BETWEEN ATTEMPTS IF ENGINE FAILS TO START.

1. DISENGAGE THE CLUTCH AND MOVE THE THROTTLE LEVER TO 1/4 OPEN.
2. TURN IGNITION SWITCH TO "ON" POSITION, PRESS STARTER BUTTON (RELEASE IMMEDIATELY WHEN ENGINE STARTS). (SEE NOTE.)
3. MOVE THROTTLE LEVER TO "RUN" POSITION.
4. RUN ENGINE AT 1,100 RPM UNTIL OPERATING TEMPERATURE IS REACHED BEFORE APPLYING LOAD.
5. OBSERVE ALL INSTRUMENTS AND GAGES FOR PROPER OPERATING RANGE.



CAUTION: STOP ENGINE IF IGNITION SWITCH FAILS TO RETURN TO "RUN" POSITION AFTER ENGINE STARTS. APPLY LOAD ONLY AFTER COMPLETE ENGINE WARMUP.

NOTE: UNITS OF EQUIPMENT WITHIN SERIAL NUMBER RANGE 6590 THRU 6629 ARE EQUIPPED WITH A DUAL IGNITION-STARTER SWITCH.

NORMAL READINGS

ENGINE TEMPERATURE	165-185° F.
BATT.-GEN. INDICATOR	GREEN RANGE
OIL PRESSURE	55-65 PSI
TACHOMETER-HOUR METER	1,740 RPM

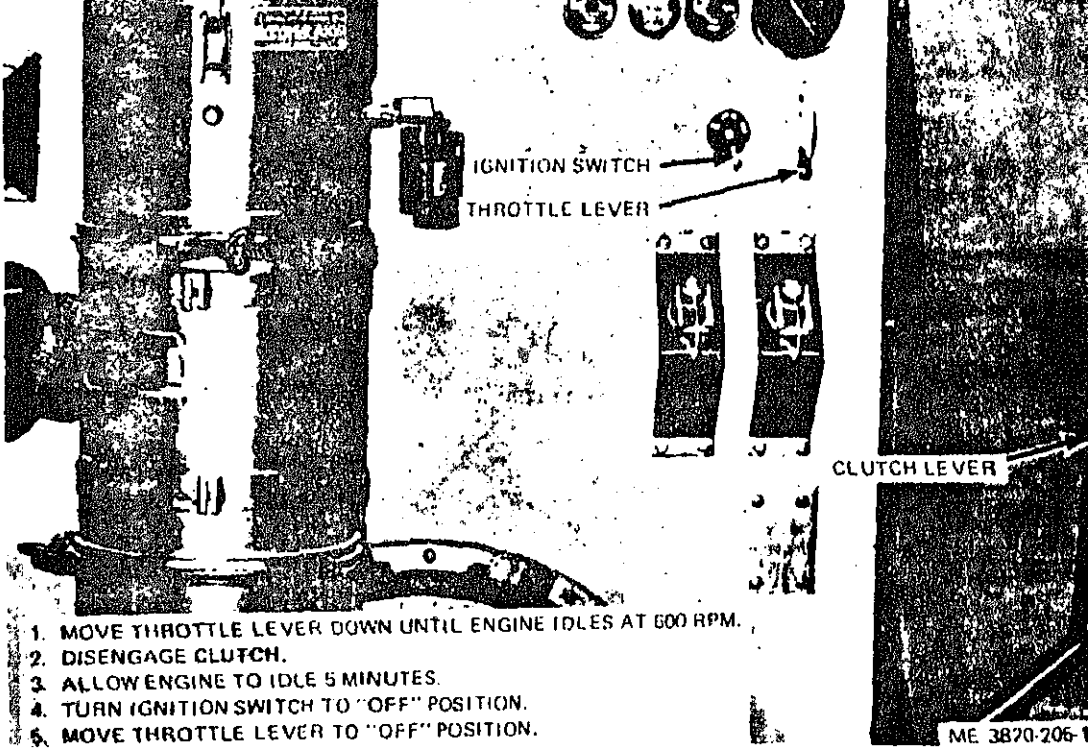


Figure 14.1. Stopping the engine (Model 5230D).

Page 55. Item 9, "is superseded by" "Check to see if red signal is visible." Check the pre-cleaner and service it when the l approaches the arrow indicator on

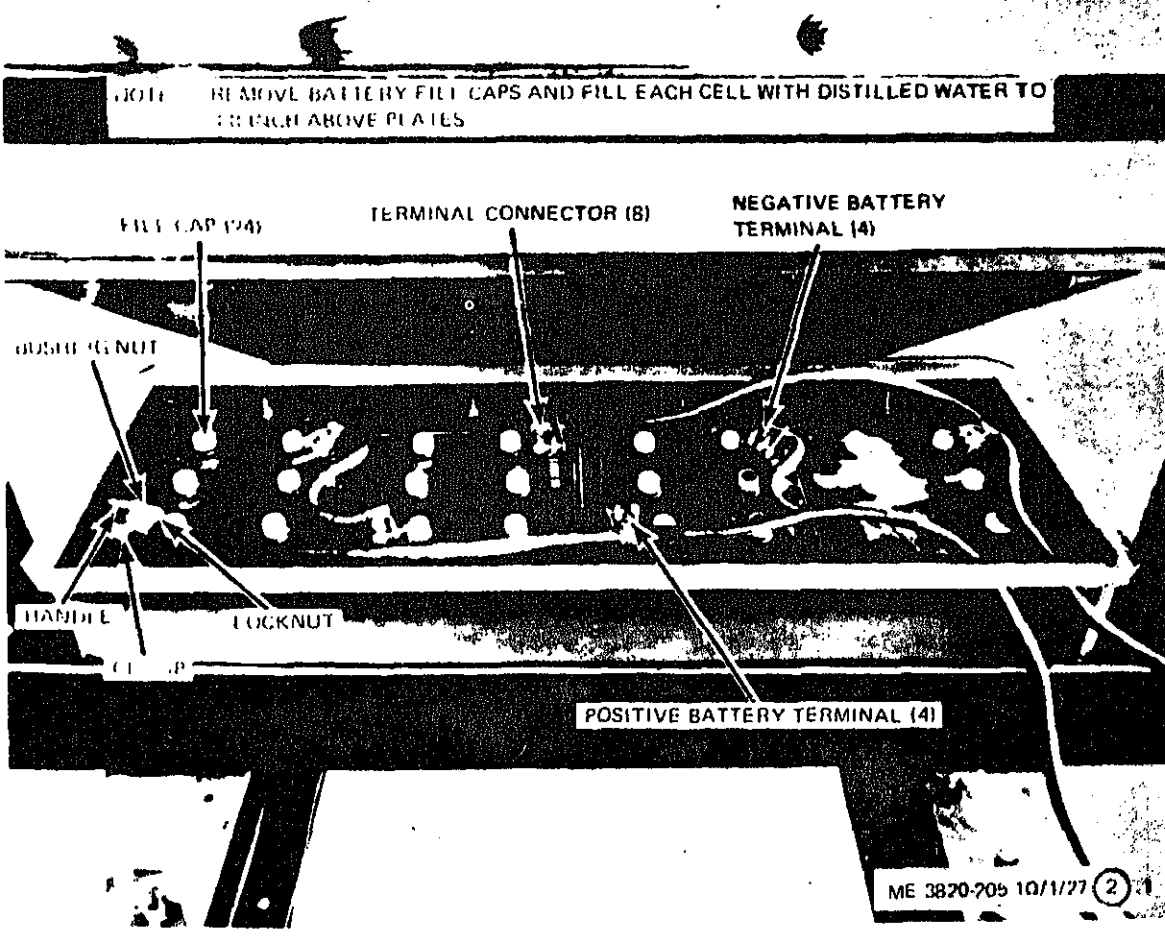
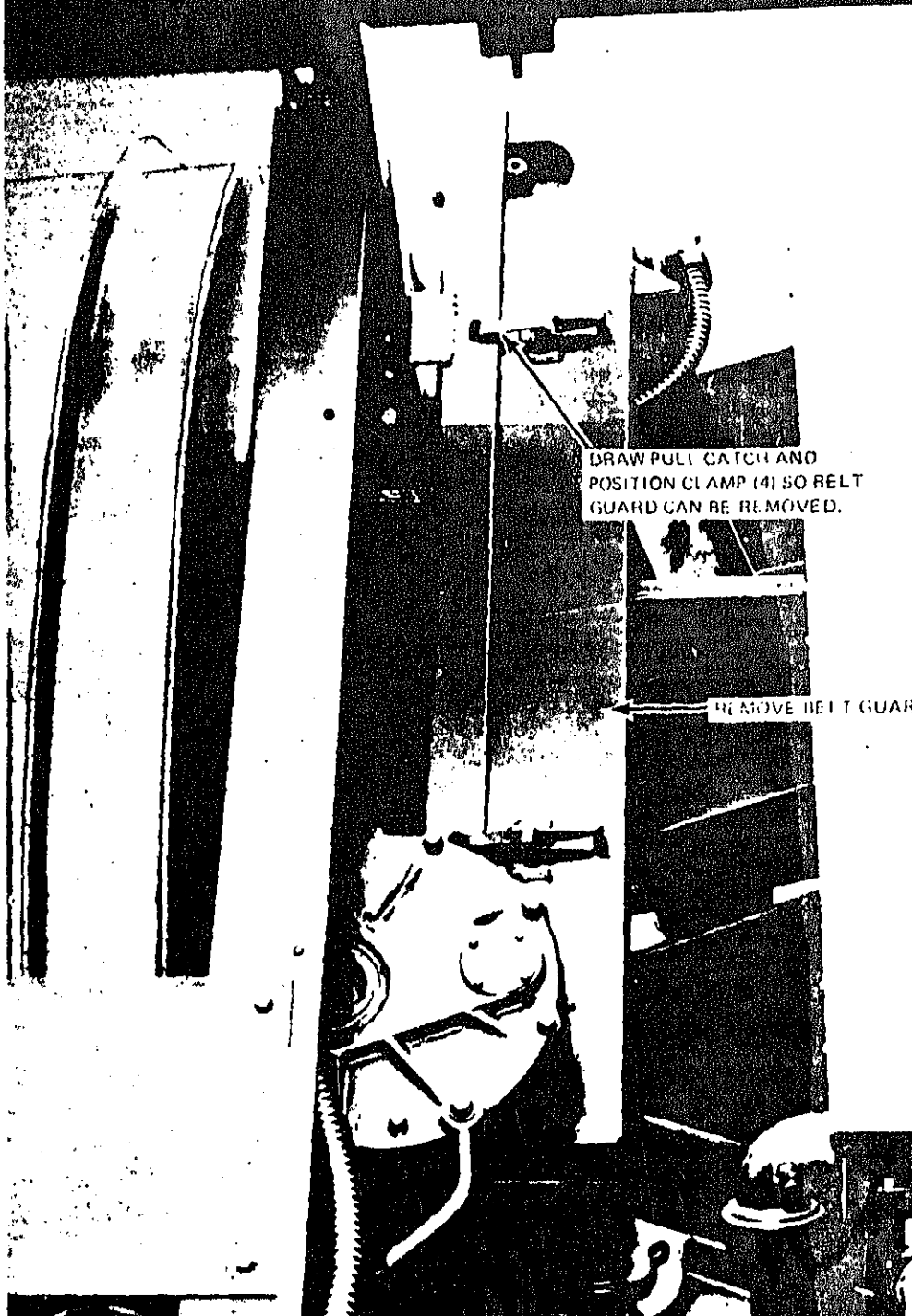


Figure 27.1. Batteries service (Model 5230D).


DRAW PULL CATCH AND
POSITION CLAMP (4) SO BELT
GUARD CAN BE REMOVED.
REMOVE BELT GUAR

TROOP INSTALLED OR AUTHORIZED LIST

Section I. INTRODUCTION

. Scope

'his appendix lists basic issue items and items roop installed or authorized which accompany he crusher and are required by the crew/oper-tor for operation, installation, or operator's naintenance.

. General

'his basic issue items and items troop installed r authorized list is divided into the following ections:

a. Basic Issue Items List—Section II. Not pplicable.

b. Items Troop Installed or Authorized List —Section III. A list in alphabetical sequence f items which, at the discretion of the unit ommander, may accompany the end item, but re not subject to be turned in with the end tem.

3. Explanation of Columns

The following provides an explanation of c umns in the tabular list of items troop instal or authorized, section III.

a. Source, Maintenance, and Recoverabil Code(s) (SMR): Not applicable.

b. Federal Stock Number. This column in cates the Federal stock number assigned to t item which will be used for requisitioning p poses.

c. Description. This column indicates t Federal item name and any additional descr tion of the item required.

d. Unit of Measure (U/M). A 2-charac alphabetic abbreviation indicating amount or quantity of the item upon wh the allowances are based; e.g., fit, ea, pr; etc

e. Quantity Authorized. This column ir cates the quantity of the item authorized to used with the equipment.

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) SMR code	(2) Federal stock number	(3) Description	(4) Unit of meas	(5) Qty au
	4210-555-8837	EXTINGUISHER, FIRE	ea	1

To be distributed in accordance with DA Form 12-25B, (qty rqr block No. 449
Maintenance Requirements for Rock Drilling Equipment.

TECHNICAL MANUAL
NO. 5-3820-205-10/1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *24 January 196*

OPERATOR'S MANUAL

CRUSHER, ROLL: DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED, PNEUMA TIRES; 75 TON PER HOUR (EAGLE CRUSHER MODEL 5230B) FSN 3820-788-59 COMPONENT OF CRUSHING AND SCREENING PLANT; DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED; 75 TON PER HOUR

CHAPTER 1
INTRODUCTION

Section I. GENERAL

. Scope

a. These instructions are published for the se of the personnel to whom the Roll Crusher, Eagle Crusher Model 5230B is issued. They rovide information on the operation, lubrica- ion, and preventive maintenance services of he equipment, accessories, components, and ttachments.

b. Appendix I contains a list of publications pplicable to this manual. Appendix II con- ains the basic issue items authorized for use y the operator. The maintenance allocation hart is located in TM 5-3820-205-20/1-1.

c. Numbers in parentheses on illustrations ndicate quantity. Numbers preceding nomen- clature callouts on illustrations indicate the preferred maintenance sequence.

d. The direct reporting by the individual user, of errors, omissions, and recommenda- tions for improving this manual is a[illegible] and encouraged. DA Form 2028 (Re[illegible] Changes to DA Technical Manual [illegible] or Supply Manual 7, 8, or 9) will be [illegible] reporting these improvements. This [illegible] be completed in triplicate using pen[illegible] typewriter. The original and one c[illegible] forwarded direct to the Commanding [illegible] U. S. Army Mobility Support Center [illegible] SMOMS-MM, P. O. Box 119, Colum[illegible] 43216. One information copy will be [illegible] to the individual's immediate supervisor [illegible] officer, noncommissioned officer, [illegible] etc.).

2. Record and Report Forms

For record and report forms applica[illegible] the operator, refer to TM 38-750.

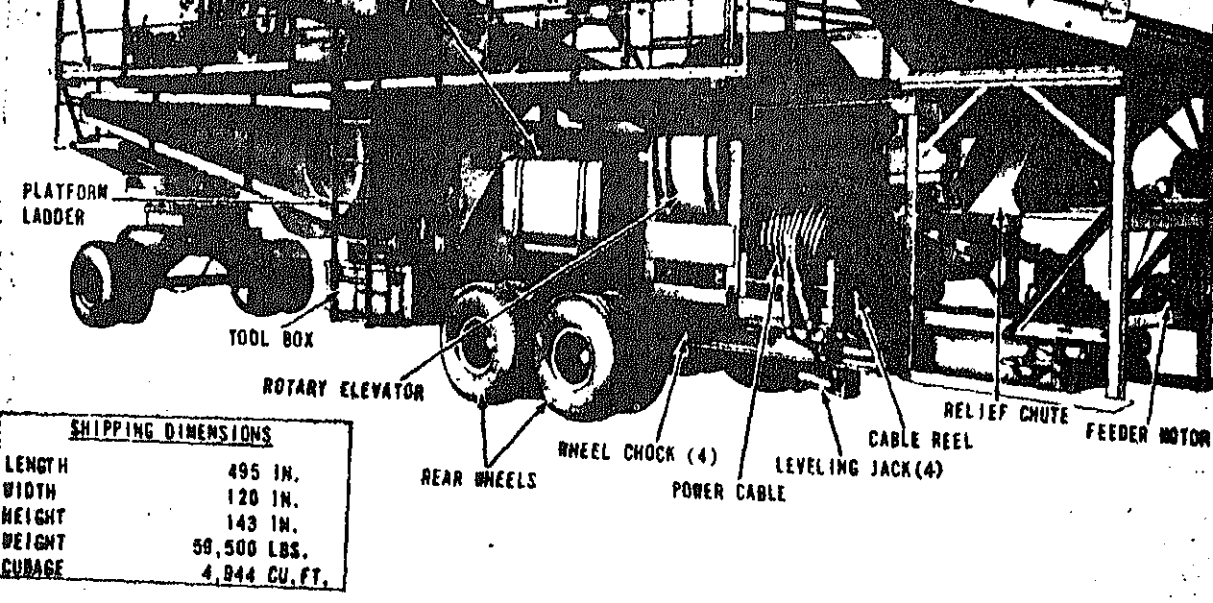
Note. Applicable forms, excluding standard [illegible] which is carried by the operator, will be kept in a [illegible] bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. Description

a. Roll Crusher. The Roll Crusher, Eagle Crusher Model 5230B (figs. 1 and 2) is a port- able, self-contained unit used to crush and grade aggregate. A four cycle, six cylinder diesel engine operates the crusher roll assem- bly. Electric motors, driven by an extraneous power source, operate the vibrator screen as- sembly, return (under) conveyor, main (feed) conveyor, rotary elevator, and reciprocating feeder assembly. These components of the roll crusher, mounted on a trailer and dolly, are de-

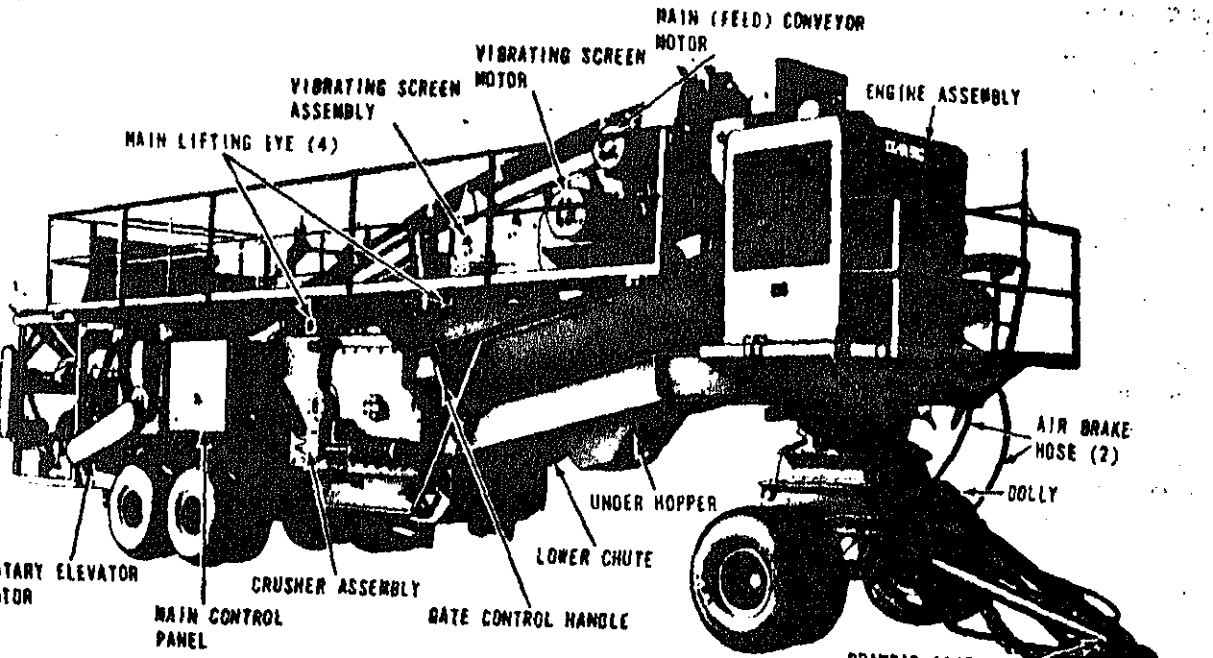
must be set up on firm level ground and [illegible] to the source of material to be proce[illegible] possible, and in position so the conveyor [illegible] dispel the processed aggregate at the [illegible] location for stock piling or hauling. Fi[illegible] illustrates a typical crushing and scr[illegible] plant layout where the crusher may be [illegible] as a component. The positions of the [illegible] components as shown are not necessarily [illegible] trary one; only the relationship to each [illegible] is indicated. For example, only the [illegible] charge conveyor is absolutely necessary [illegible] eration, the remaining three indicat[illegible]

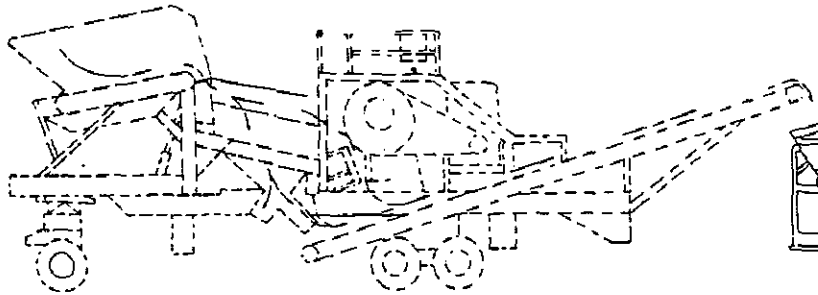


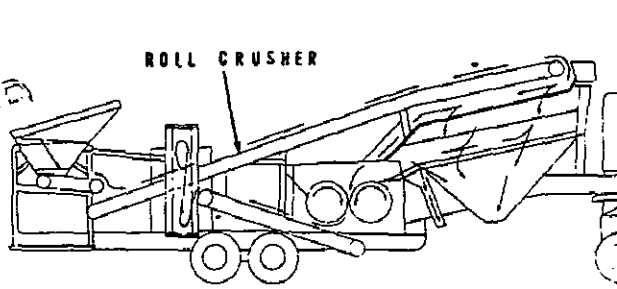
SHIPPING DIMENSIONS	
LENGTH	495 IN.
WIDTH	120 IN.
HEIGHT	143 IN.
WEIGHT	59,500 LBS.
CUBAGE	4,944 CU.FT.

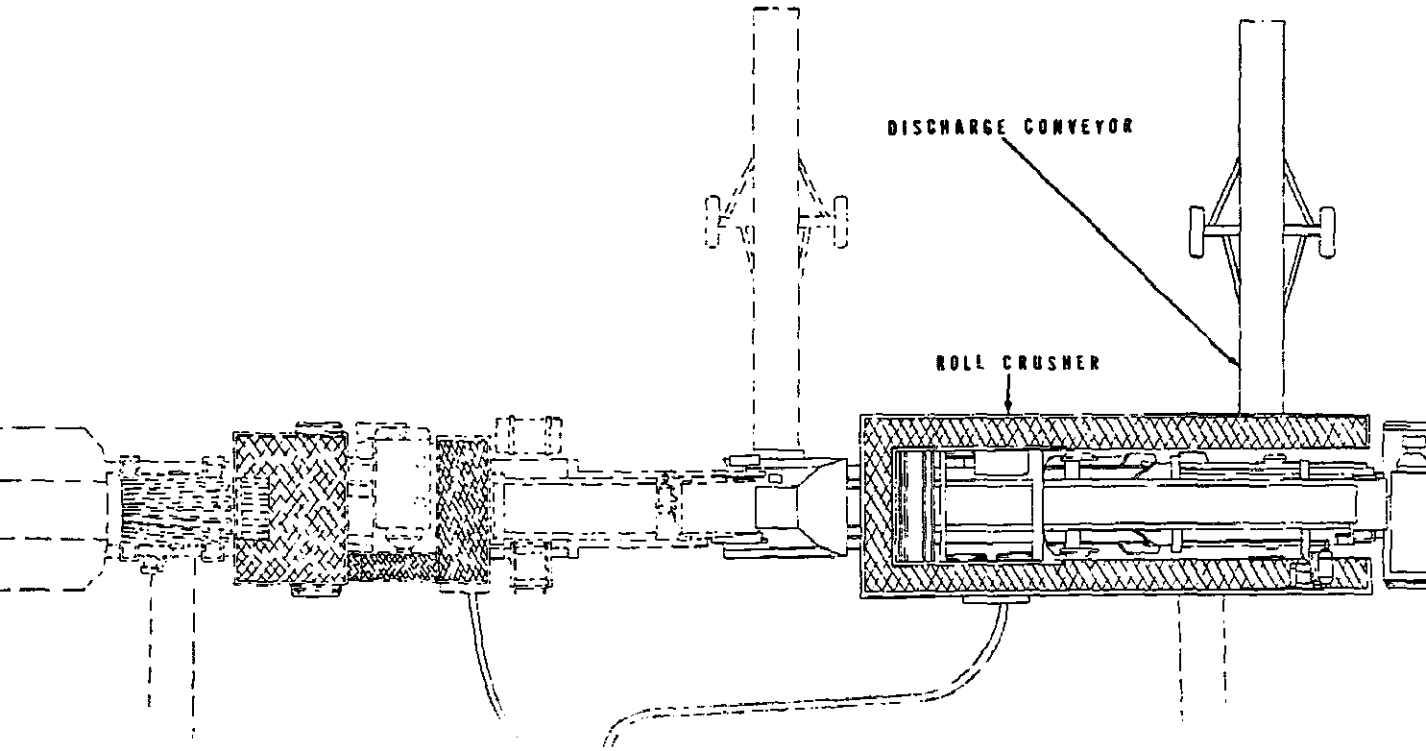
ERC 3820-208-10/1/1

Figure 1. Roll crusher, left rear, three-quarter view.






ROLL CRUSHER


DISCHARGE CONVEYOR
ROLL CRUSHER

4. Identification and Tabulated Data

a. Identification. The roll crusher has 15 major identification and instruction plates which are applicable to the operator.

(1) *Corps of Engineers identification plate.* Located on the left of the main frame of the trailer, below the vibrating screen assembly. It gives the Federal stock number, model number, and dimensions.

(2) *Engine manufacturer's identification and data plate.* Located on the left side of the engine block, behind the fuel injection pump. It gives the manufacturer, model, and tappet clearance.

(3) *Clutch identification and instruction plate.* Located on the clutch housing inspection hole. It gives the adjustment and lubrication data.

(4) *Transportation data plate.* Located on the left of the main frame of the trailer, below the vibrating screen assembly. It gives overall length, width, height, and center of gravity.

(5) *Feeder, return (under) conveyor, and rotary elevator motor identification plates.* Provides manufacturer, model, horsepower, amps (amperes), volts, and rpm (revolutions per minute). The plates are identical and are located on the motor housing.

(6) *Secondary trailer identification plate.* Provides the manufacturer and serial number. It is located on the left of the main frame of the trailer.

(7) *Dolly identification plate.* Provides the manufacturer, model, and serial number. It is located on the front of the dolly frame below the fifth wheel.

(8) *Vibrating screen identification plate.* Provides the manufacturer, model, and serial number. It is located on the left of the vibrating screen assembly.

(9) *Vibrating screen motor identification plate.* Provides the manufacturer, model, and serial number, amps, volts, and cycles. It is located on the vibrating screen motor housi

(10) *Main (feed) conveyor motor identification plate.* Provides the manufacturer, model, and serial number, amps, volts, and cycles. It is located on the conveyor motor housin

(11) *Main (feed) conveyor gear reducer identification plate.* Provides the manufacturer, class, horsepower, and ratio. It is located on the gear reducer housing.

(12) *Rotary elevator and return conveyor gear reducer identification plate.* Provides the manufacturer, class, horsepower, and ratio. It is located on the rotary elevator reducer housing.

(13) *Feeder gear reducer identification plate.* Provides the manufacturer, class, horsepower, and ratio. It is located on the feeder gear reducing.

(14) *Main control panel identification data plate.* Provides the manufacturer, volts, phase, cycles, and serial number. It is located inside the main control panel on the upper left-hand

(15) *Main control panel caution plate.* The main control panel caution plate is located on the outside of the main control panel door. It states that a suitable ground rod and lead shall be installed at the power source before making the receptacles.

b. Tabulated Data.

(1) *General.*

Manufacturer	Eagle Crusher
Model	5230B
Type	Roll Crusher
Plant unit function	Secondary
Tire pressure	100 psi (pounds per square inch)

Type.....Diesel
Cycle.....4
Number of cylinders.....6
Rated horsepower.....144 hp (horsepower) at 1,400 rpm
Oil pressure.....55–65 psi
Brake horsepower.....202 hp at 1,400 rpm
Cooling system:
Type.....Liquid
Temperature range.....165° to 185° F. (degrees) (Fahrenheit)
Electrical system:
Operating voltage.....24 v (volts)
Number of batteries.....4 (series parallel connected)
Type of batteries.....Storage, 12-v, 6-cell (type designation 6TN).
Type of ground.....Negative
Air cleaner-type.....Dry
Clutch-type.....Friction, dry, positive-action

(3) *Roll crusher assembly.*

Manufacturer.....Eagle Crusher Co., Inc.
Model.....24 x 30
Size of discharge opening.....¼ to 3 in. (inches)
Speed in rpm—rolls.....87–90
Ratio of reduction.....3.38 to 1

(4) *Vibrating screen assembly.*

Manufacturer.....Allis-Chalmers Manufacturing Co.
Model.....S
Type.....Ripl-flo
Size.....4 x 10 DD
Maximum speed.....900 rpm

(5) *Reciprocating feeder.*

Manufacturer.....Eagle Crusher Co., Inc.
Model.....4517
Capacity (24 in.).....175 tph (tons per hour)

(6) *Rotary elevator.*

Manufacturer.....Eagle Crusher Co., Inc.
Model.....4601
Size.....72 in. dia (diameter) x 24 in. w (wide)

(7) *Main (feed) conveyor.*

Manufacturer.....Eagle Crusher Co., Inc.
Model.....5031
Capacity.....175 tph
Belt width.....24 in.

(8) *Return (under) conveyor.*

Manufacturer.....Eagle Crusher Co., Inc.
Model.....30288

Manufacturer.....General Electric
Model.....5KG215BG202
Type.....KG
Horsepower.....5
Revolutions per minute.....1,745
Volt.....208–220/440
Phase.....3
Cycle.....60
Amperes.....14.2/7.1
Time rating.....Continuous

(12) *Vibrating screen motor.*

Manufacturer.....General Electric
Model.....5KG4284B2
Type.....KG
Horsepower.....15
Revolutions per minute.....1,755
Volt.....208–220/440
Phase.....3
Cycle.....60
Amperes.....40.8/20.4
Time rating.....Continuous

(13) *Main (feed) conveyor motor.*

Manufacturer.....General Electric
Model.....5KG4256B2
Type.....KG
Horsepower.....10
Revolutions per minute.....1,745
Volt.....208–220/440
Phase.....3
Cycle.....60
Amperes.....27.4/13.7
Time rating.....Continuous

(14) *Main (feed) conveyor gear reducer.*

Manufacturer.....General Electric
Model.....7GT215FDONC
Class.....1
Horsepower.....16.9 hp at 1,750
Ratio.....15:1
Code.....XS

(15) *Rotary elevator gear reducer.*

Manufacturer.....General Electric
Model.....7GT207FDONC
Class.....1
Horsepower.....11.1 hp at 1,750
Ratio.....15:1
Code.....WS

(16) *Feeder gear reducer.*

Manufacturer.....General Electric
Model.....7GT207FDONC
Class.....1
Horsepower.....11.1 hp at 1,750

aggregate sizes.	
Crusher rolls aggregate sizes.	3 in. to ¼ in. discharge size
Conveyor belt width	24 in.

(19) *Adjustment data.*

Defectors (hopper loaded) and belt scrappers.	Barely touch conveyor belt
Conveyor belt	Just enough to prevent slipping when loaded.
Generator belt	¾ in. deflection midway between pulleys.
Electric motor drive belts	½ in. deflection midway between pulleys.
Roll adjusting spring	23 in.

(20) *Capacities.*

Fuel tank	100 gal (gallons)
Crankcase	18 qt (quarts)
Oil filters	6 qt
Radiator	70 qt
Gear assembly conveyor drive.	5 qt
Return conveyor gear reducer.	4 qt
Gear assembly, feeder drive	2 qt
Elevating wheel gear reducer.	2 qt
Crusher frames (crusher gearcase).	92 qt

(21) *Dimensions and weights.*

Overall length	495 in.
Center of gravity	72 in. above ground lev 89 in. forward betwe center of bogie wheels

5. Difference in Models

This manual covers only the Eagle Mod 5230B Roll Crusher, serial number ranges 65 through 6587 and 6590 through 6629. Whe differences exist between the two serial numb ranges, each serial number range is cover separately in the applicable maintenance secti of this manual. Units within serial numb range 6590 through 6629 have two diesel engi air cleaners, units within serial number ran 6550 through 6587 have one. Units within seri number rang 6590 through 6629 have both co ant temperature and lubricating oil pressu warning lights, but the units within ser number range 6550 through 6587 do not. Un within serial number range 6590 through 66 are equipped with a dual ignition-start switch, units within serial number range 65 through 6587 are equipped with a separa switch for the ignition circuit and anoth switch for the starter energizing circuit.

CHAPTER 2

INSTALLATION AND OPERATION INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

Unloading the Roll Crusher

The operator may assist in unloading the roll sher from the common carrier. The operator l help remove the tie-down cables, strapping, cking, and the like which secure the roll sher on the carrier. Organizational Maintece personnel will perform the remaining options.

Inspecting and Servicing the Roll Crusher

ote. Make sure the roll crusher is completely deessed before servicing. Make certain preservatives e been removed from the crankcase and fuel tanks.

. Perform the preventive maintenance servlisted in paragraph 29.

. Make a complete visual inspection to see the required tools, repair parts, publicas, accessories, and attachments are with the crusher and are in serviceable condition.

Visually inspect the roll crusher for loss parts or damage which may have ocurred ing loading, shipping, or unloading.

Report all damage and deficiencies to orizational maintenance.

Installation or Setting-Up Instructions

Locate the roll crusher on a flat or leveled ace. If necessary, use any suitable equipt such as a bulldozer to level the site. Plan site so there will be no obstruction to trucks ther hauling vehicles going to and from the t. Refer to figure 3 for suggested placet of plant components. After the crusher is ted, level the area immediately under the

c. The crusher is equipped with four m screw-type leveling jacks. Lower the le jacks (A, fig. 4) and position the jacks t jack pad recess as instructed on B, figure the ground is soft or provides a poor b surface, place timbers or other suitable ports under the jack pads.

d. Level the trailer frame. Check in places to avoid having a twist or sag in frame. Adjust the jacks accordingly. Ac in leveling is very important, because an properly leveled crusher unit may cause drive belts and conveyor belts to run off; m rial to travel to one side of screens; and ri mountings of the vibrating screen to twist

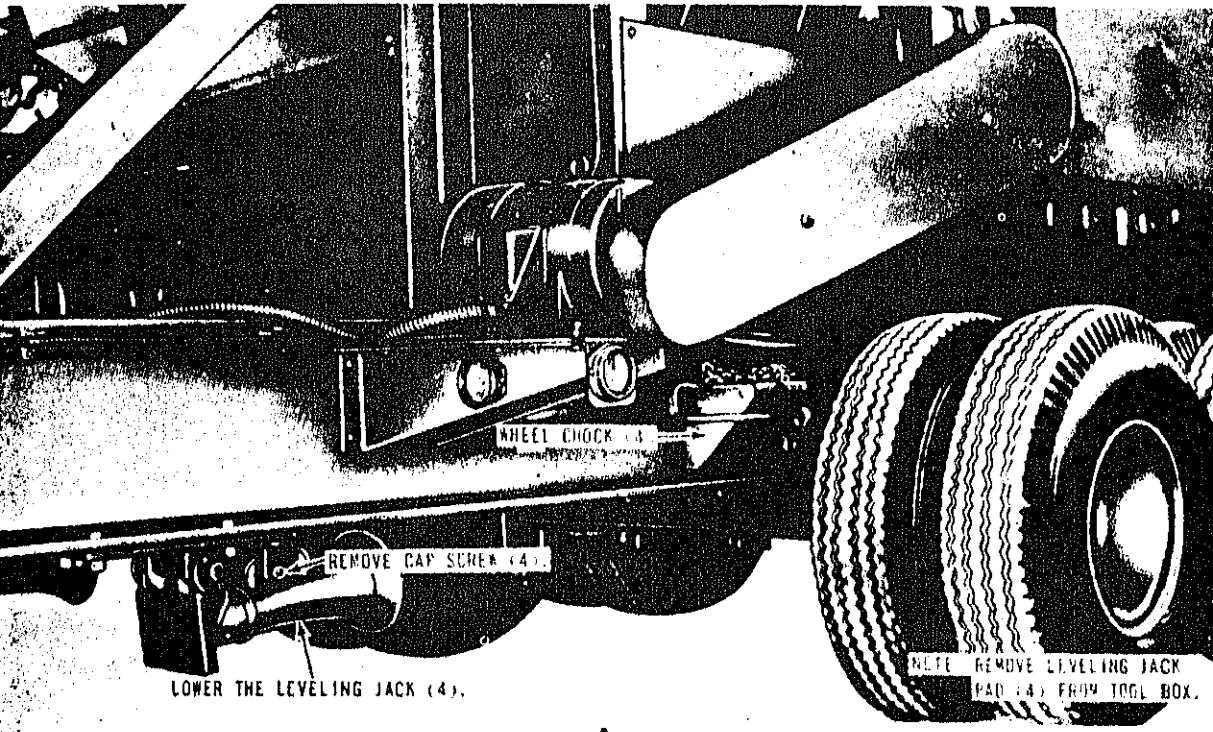
e. Crib the roll crusher by raising the f end with the leveling jacks, keeping the cru level, and build the cribbing solidly up to frame. Screw the jacks back in a few t allowing the weight to rest on the crib Crib under the rear end of the crusher fr in a similar manner.

Caution: Install the leveling jacks and bing so that roll crusher will be level lengthwise and crosswise, and the weight of crusher is removed from the wheels and a

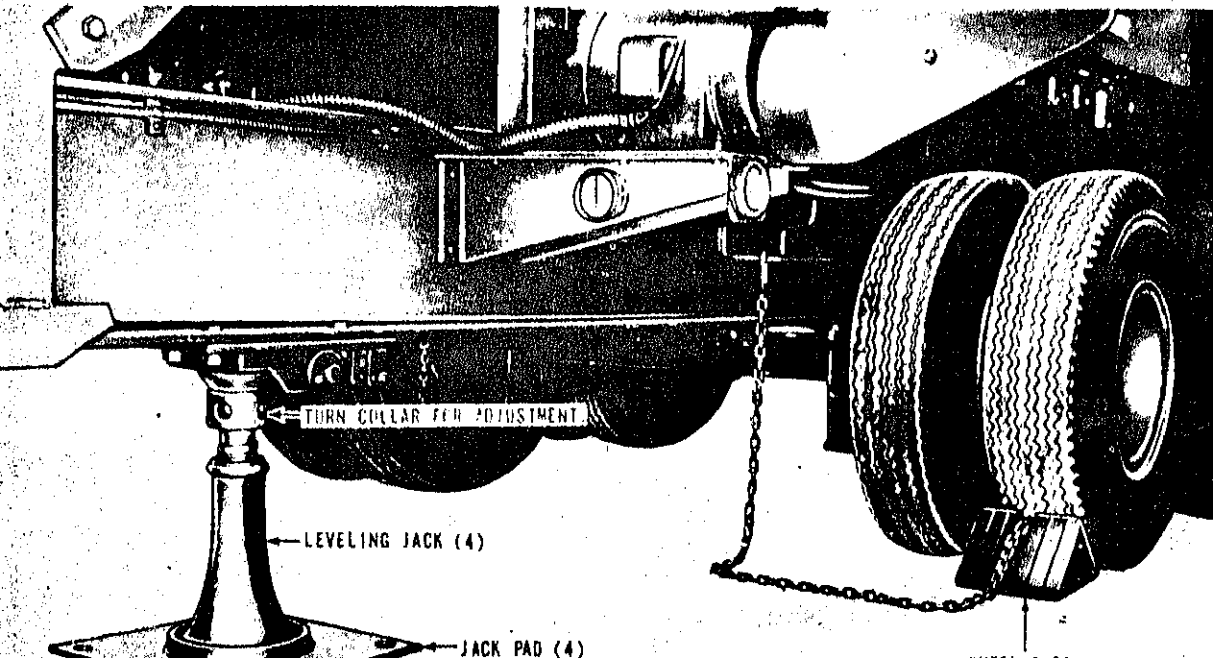
f. Install the drawbar jack as illustrate figure 4, (on units of equipment within S No. range 6590 through 6629.)

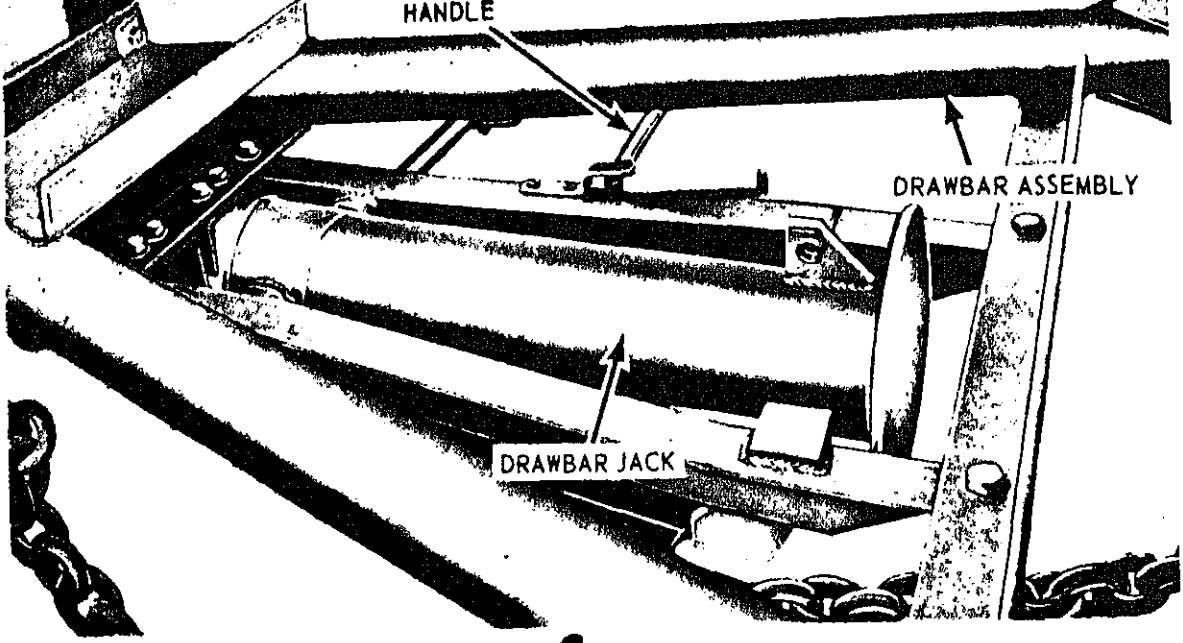
g. Position the discharge conveyor of crushing and screening plant as illustrate figure 3.

h. Install the ground rod as instructe

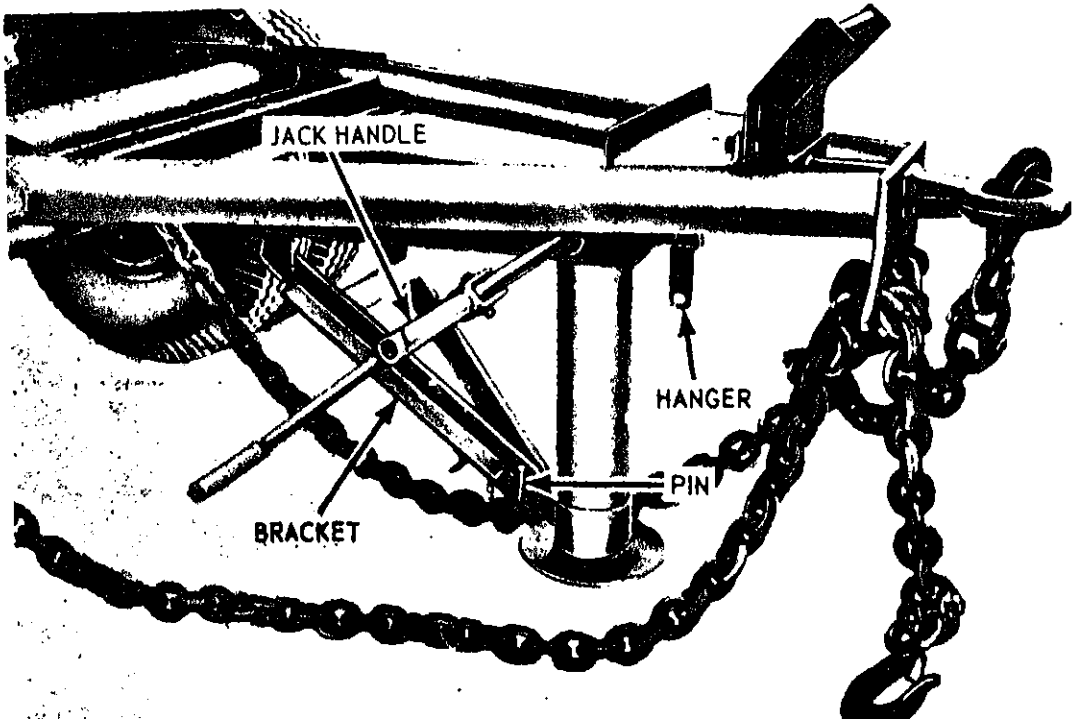

WHEEL CHOCK (4)
REMOVE CAP SCREW (4).
LOWER THE LEVELING JACK (4).
NOTE: REMOVE LEVELING JACK PAD (4) FROM TOOL BOX.

A


TURN COLLAR FOR ADJUSTMENT.
LEVELING JACK (4)
JACK PAD (4)


HANDLE
DRAWBAR ASSEMBLY
DRAWBAR JACK

C


JACK HANDLE
HANGER
PIN
BRACKET

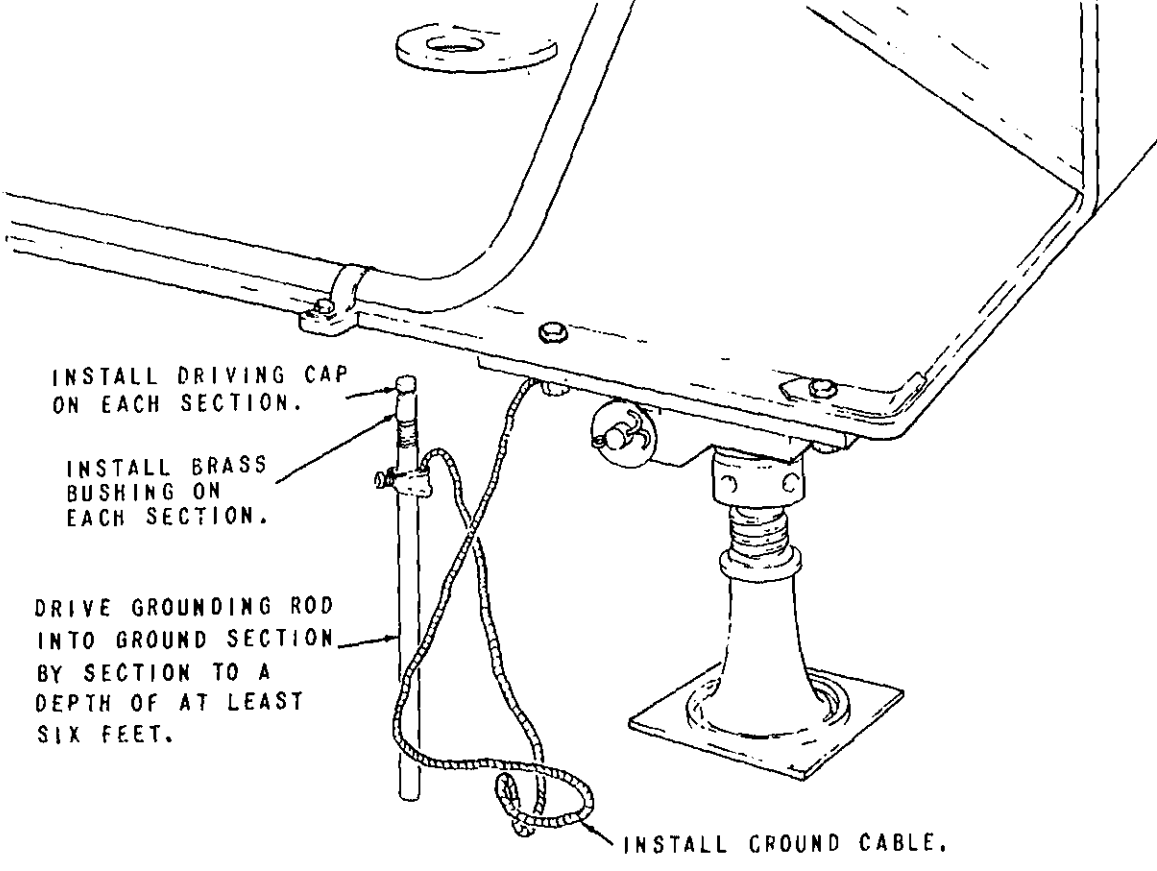


Figure 5. Grounding the roll crusher.

jumper cable to the control panel, and connect the main power cable to the control panel and main power source as instructed on figure 8.

Warning: **Make certain the roll crusher and the source of power, are properly grounded before installing the short main power the power source.**

k. Connect the feeder jumper cabl feeder motor as instructed on figure 9.

l. Install the feeder relief chute exte

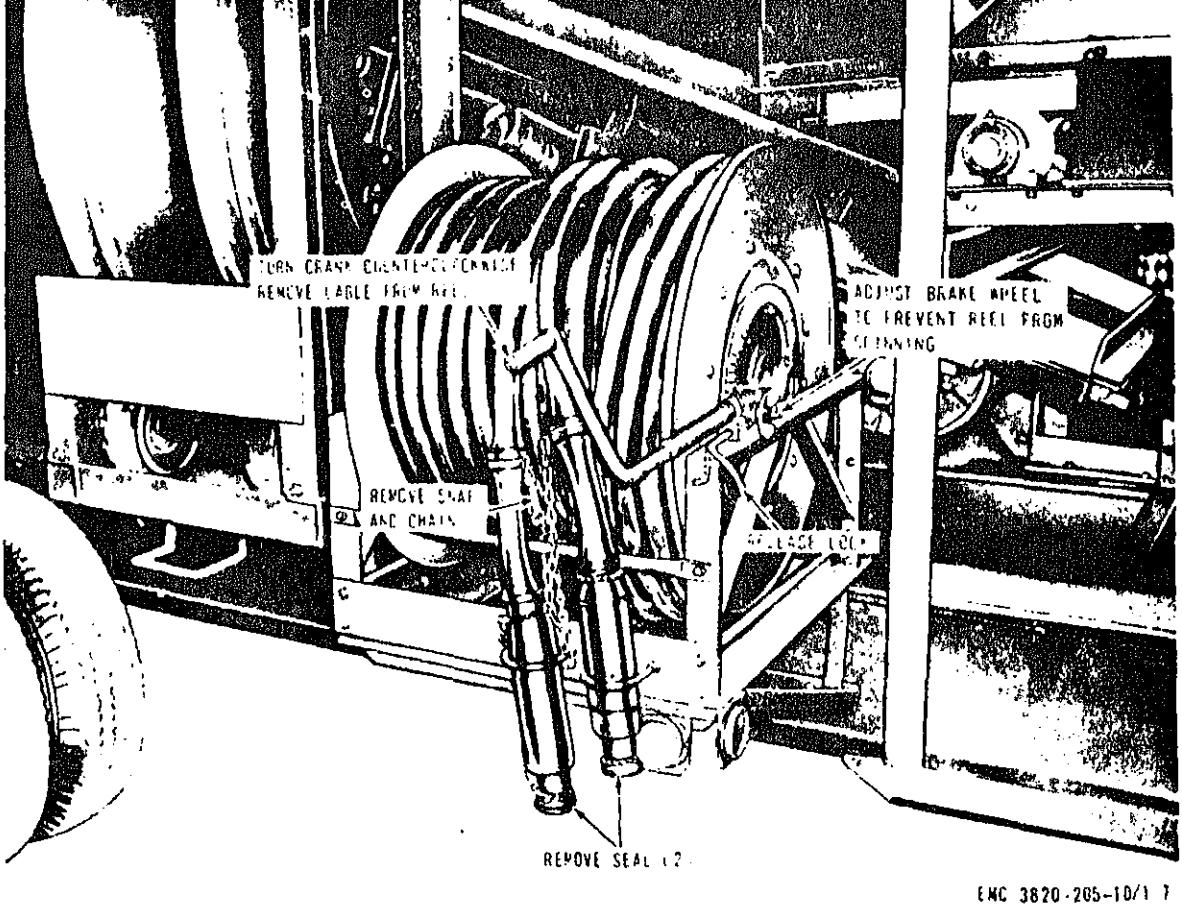


Figure 6. Main power cable installed on reel.

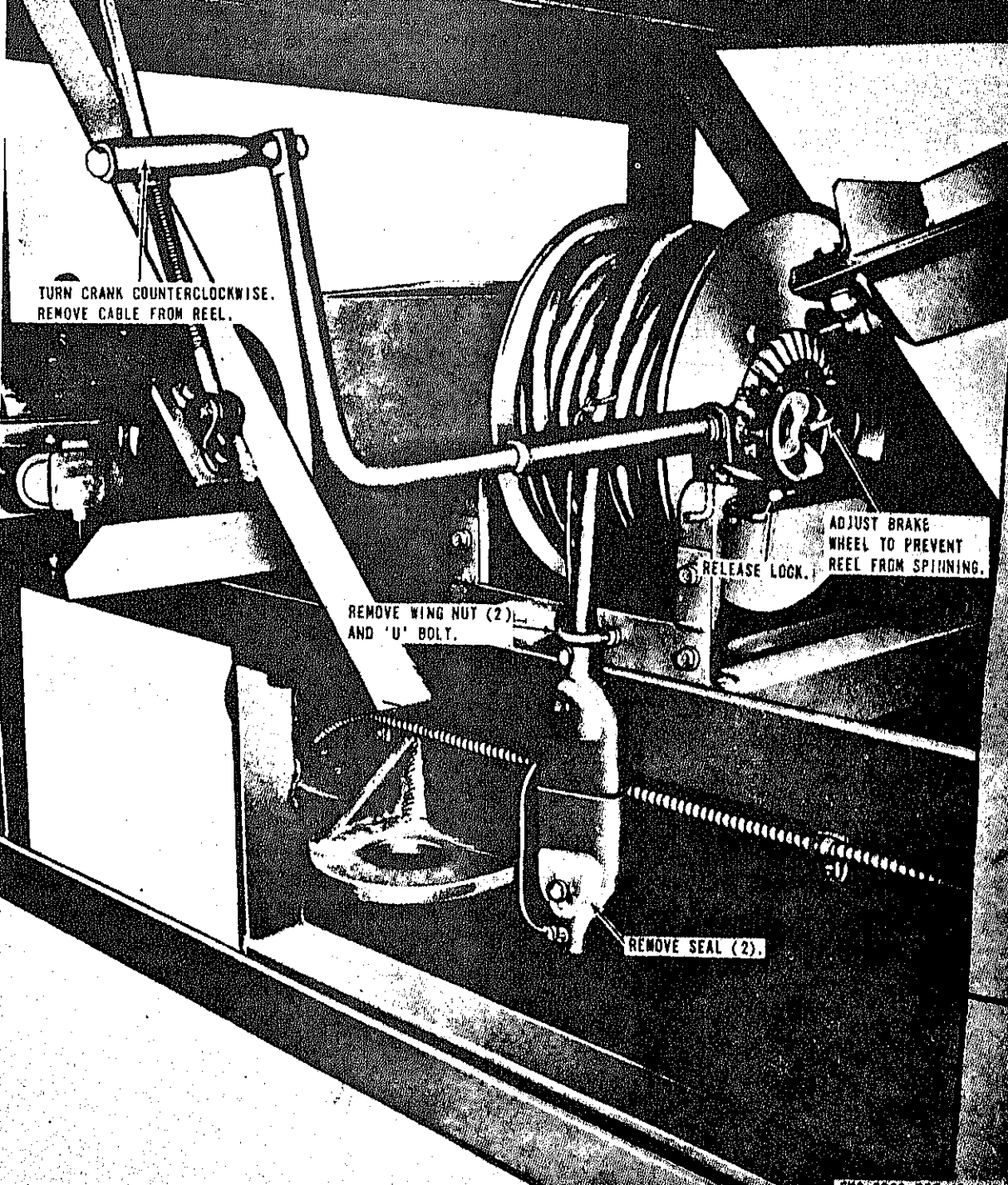
the feeder relief chute as instructed on figure 10.

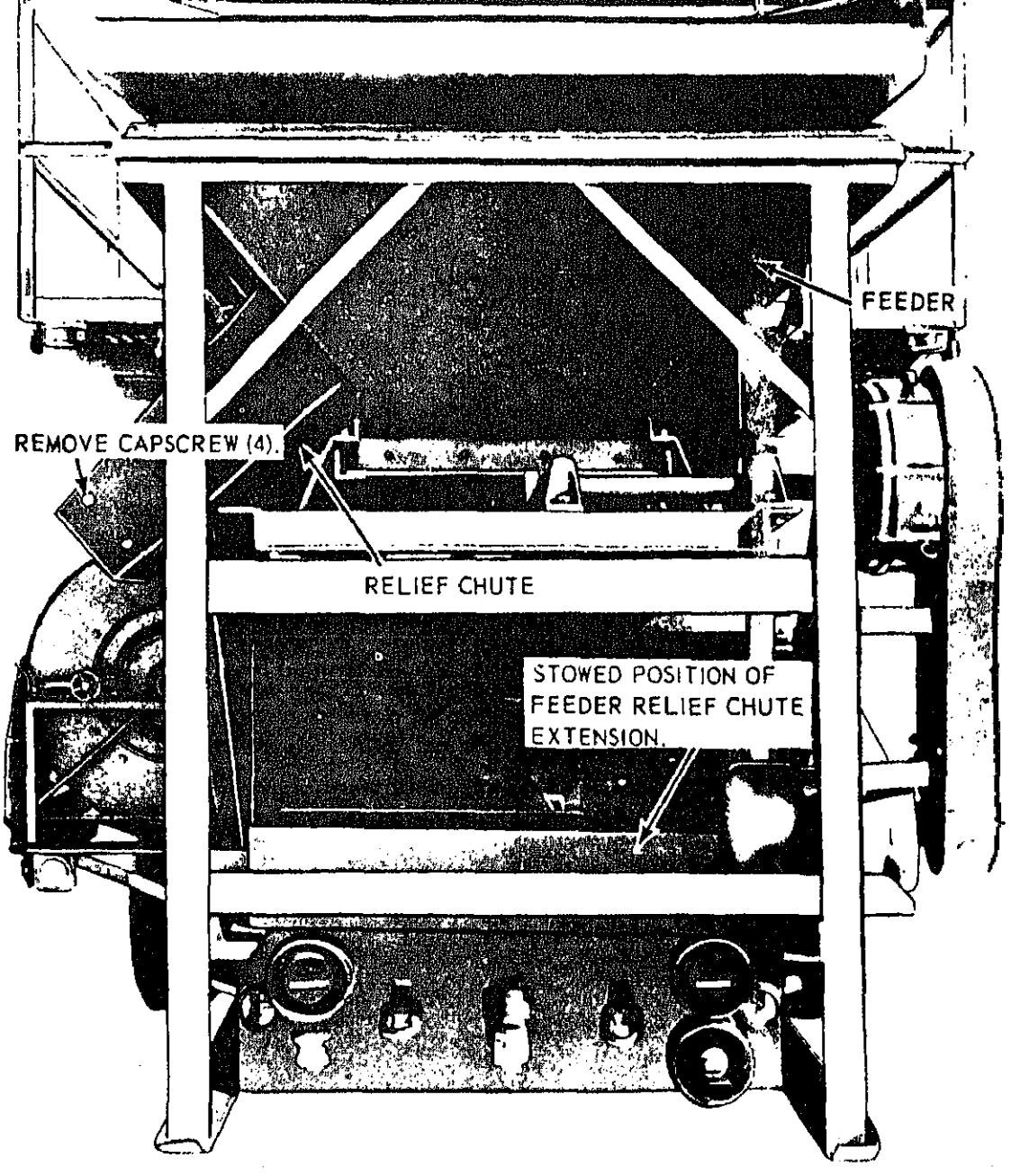
m. Open the main control panel door and push the circuit breakers to the ON position as instructed on figure 11.

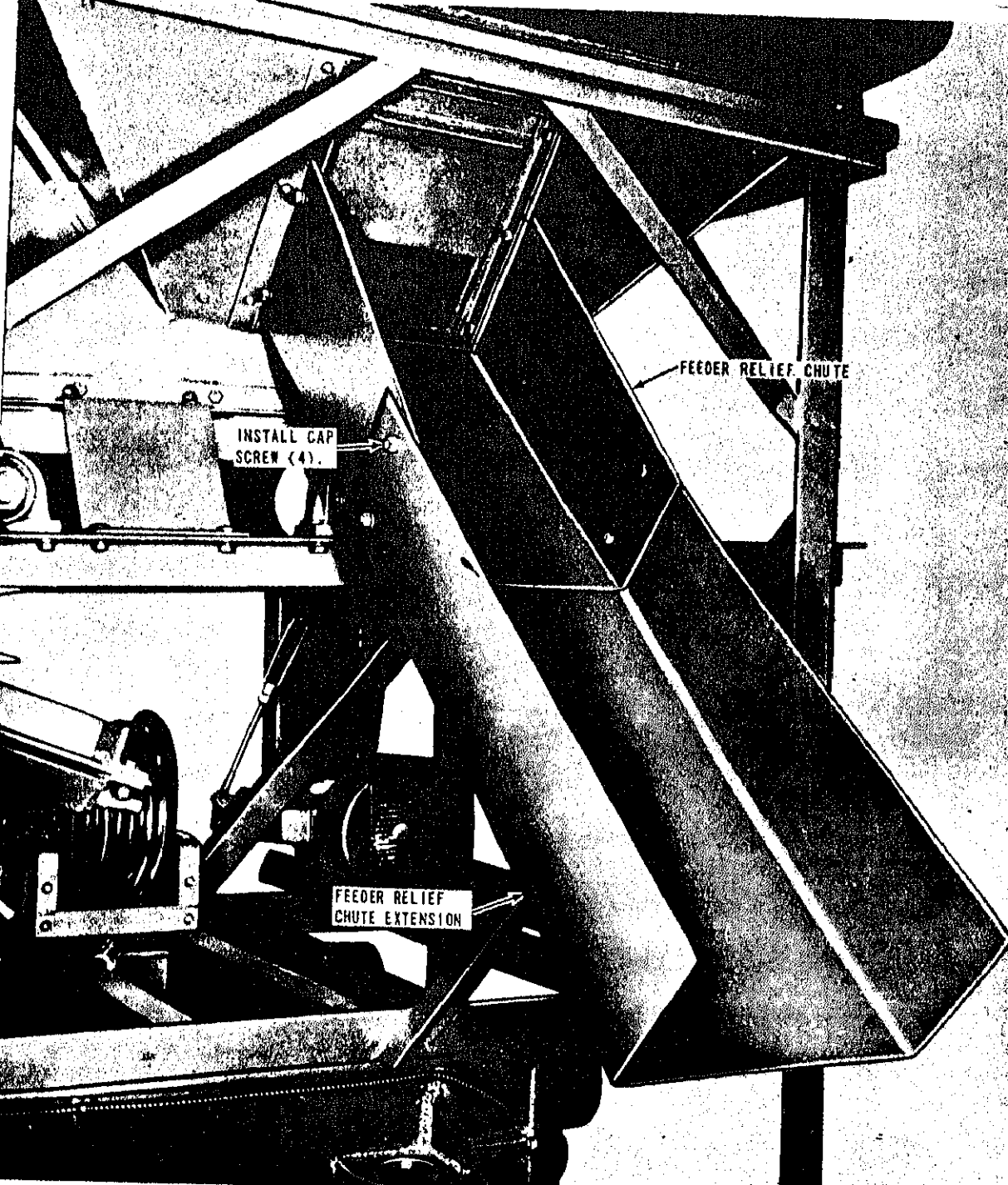
9. Movement to a New Worksite

a. Remove all aggregate material from the conveyor belts, hoppers, and crusher.

b. Disconnect the main power cable and the short main power cable from the power source


TURN CRANK COUNTERCLOCKWISE.
REMOVE CABLE FROM REEL.
ADJUST BRAKE WHEEL TO PREVENT REEL FROM SPINNING.
RELEASE LOCK.
REMOVE WING NUT (2) AND 'U' BOLT.
REMOVE SEAL (2).


FEEDER
REMOVE CAPSCREW (4).
RELIEF CHUTE
STOWED POSITION OF FEEDER RELIEF CHUTE EXTENSION.


FEEDER RELIEF CHUTE
INSTALL CAP SCREW (4).
FEEDER RELIEF CHUTE EXTENSION

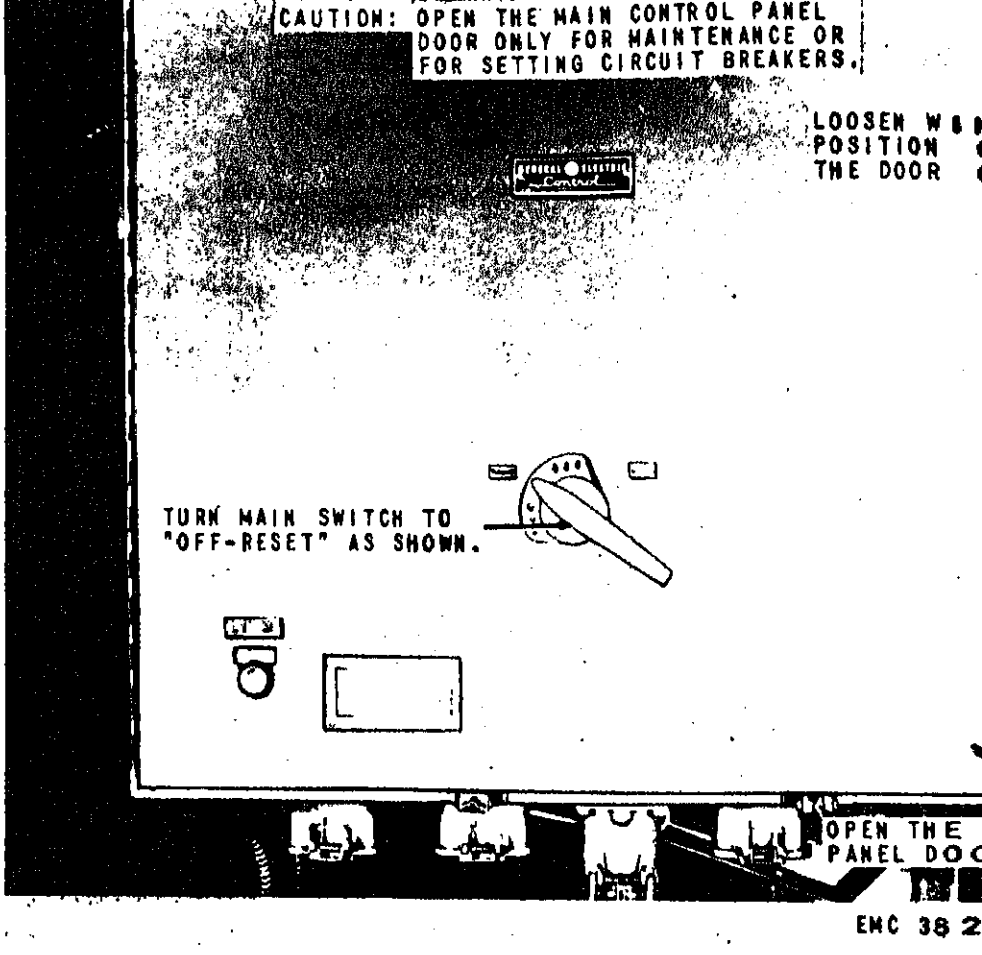


Figure 11. Actuating the roll crusher electrical system.

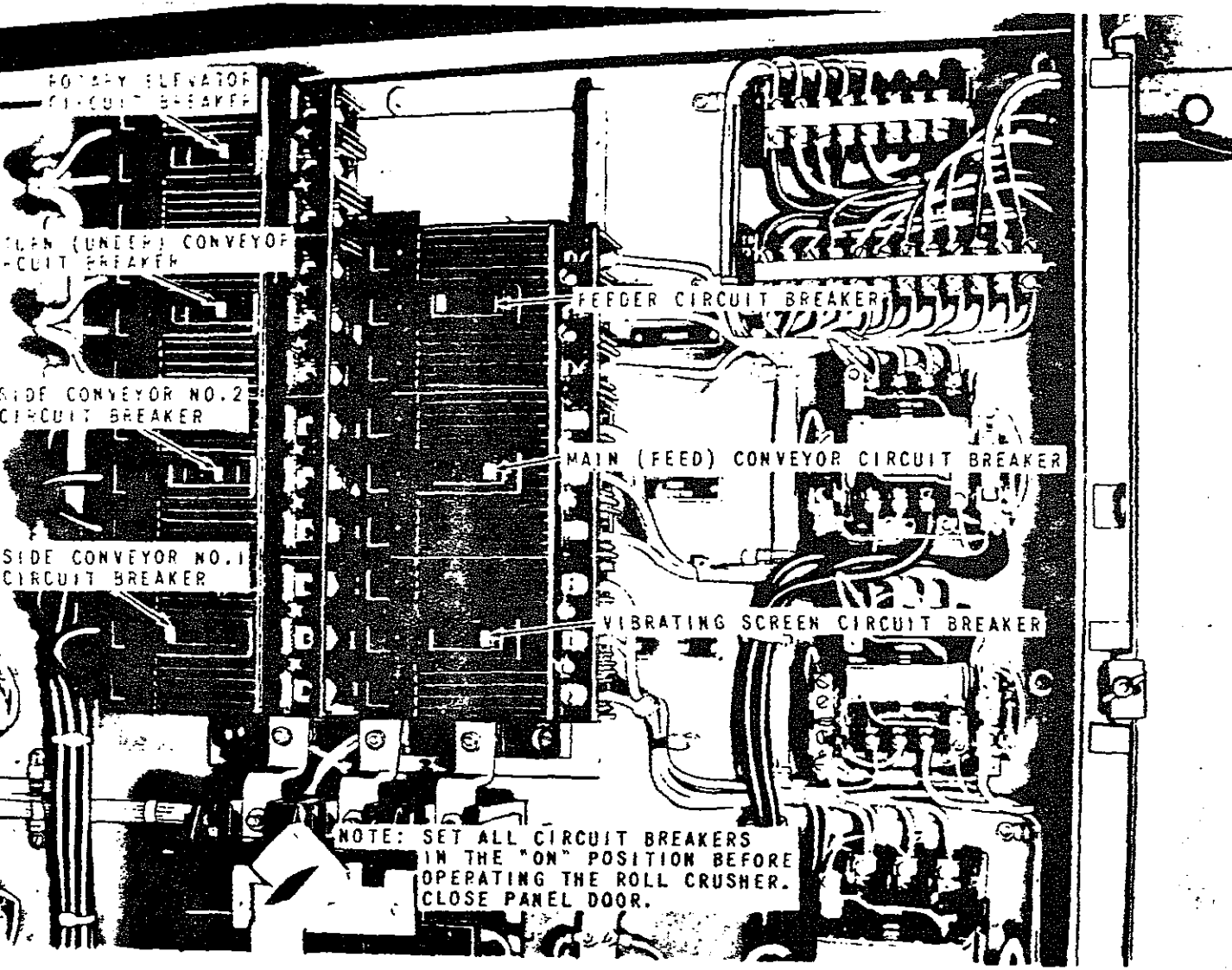
stow the extension in reverse of the instructions on figure 10.

l. Tow the roll crusher a maximum of 20 miles per hour over-the-road or 10 miles per hour maximum cross-country to the new worksite.

Note. Refer to figure 1 and
dimensions, weights, and tire p

Caution: **Make certain**
attached and secure before

m. Install and set up t
8).


FEEDER CIRCUIT BREAKER
MAIN (FEED) CONVEYOR CIRCUIT BREAKER
VIBRATING SCREEN CIRCUIT BREAKER
NOTE: SET ALL CIRCUIT BREAKERS IN THE "ON" POSITION BEFORE OPERATING THE ROLL CRUSHER. CLOSE PANEL DOOR.

10. General

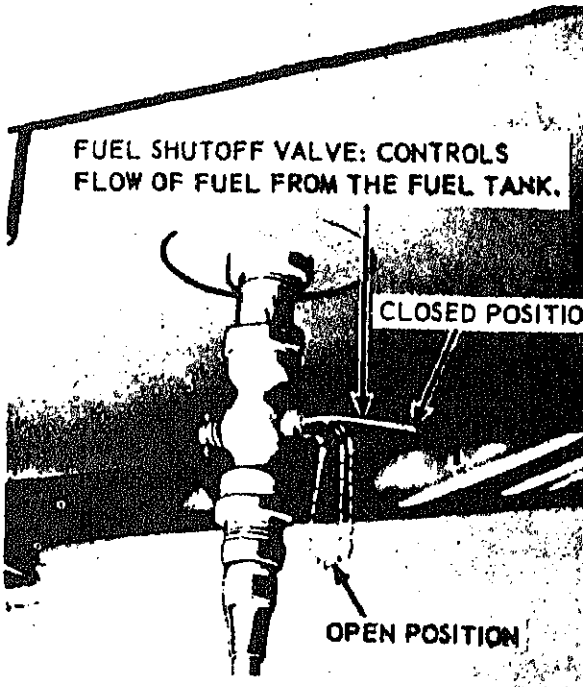
This section describes, locates, illustrates, and furnishes the operator or crew sufficient information about the various controls and instruments for proper operation of the roll crusher.

11. Controls and Instruments

The purpose, location, and use of the controls, and normal readings of the
and gages are illustrated on figure

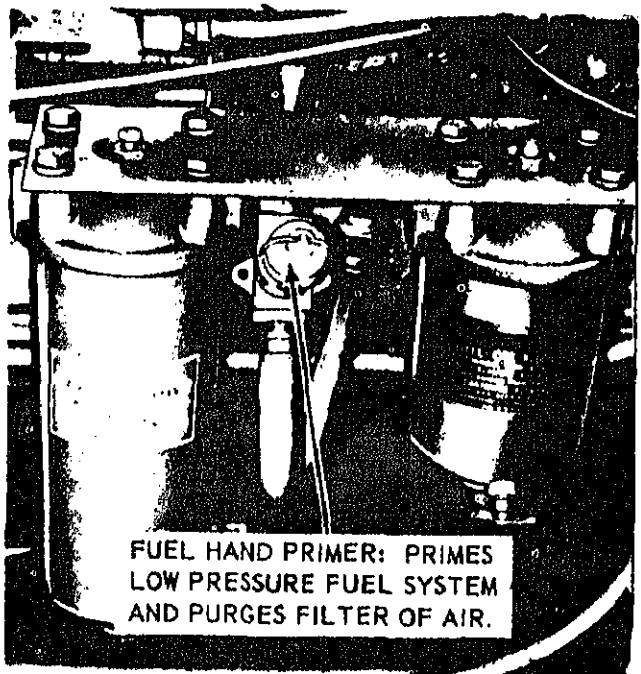
Caution: Operator's switch box
properly closed and sealed to pre
from entering the box and causing
controls to corrode and become un
All control boxes should be examine
that doors are properly sealed and

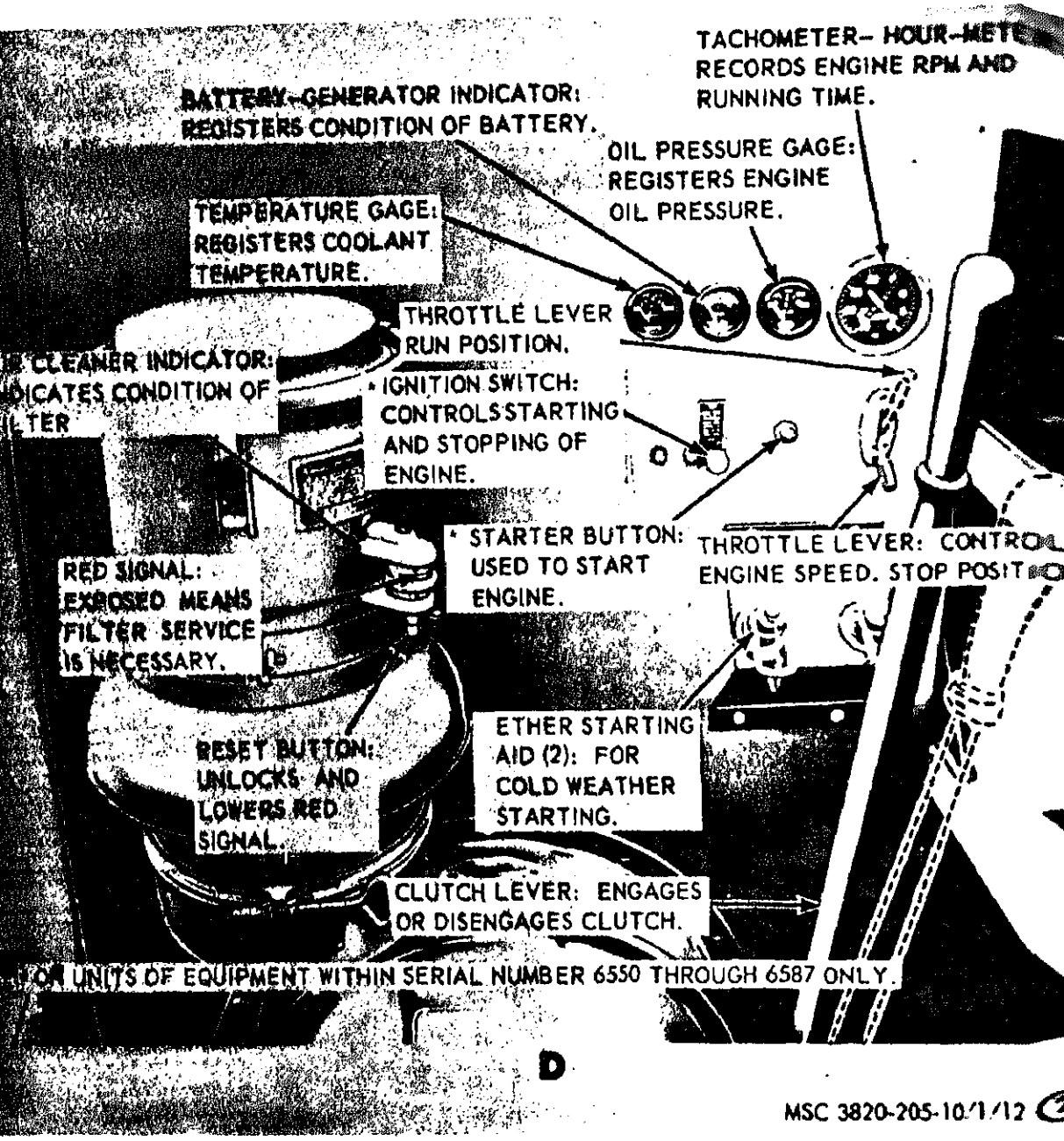
FUEL GAGE: REGISTERS LEVEL OF FUEL IN FUEL TANK.



A

B





D—Engine instrument panel

	adjustment. Proper adjustment is 0.020 inch for intake valves and 0.024 inch for exhaust. (HOT)	
20	CONTROLS AND INSTRUMENTS. Inspect for loose mounting, loose connections, and proper operation. Normal operating readings for instruments are as follows: Oil pressure gage - 55 to 65 psi, Water temperature gage - 165° to 185°F, Ammeter - green range, Tachometer - 1,400 rpm.	
	NOTE: OPERATIONAL TEST. During operation check for unusual noise or vibration, leaks, and proper operation.	

trouble. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble beyond the scope of organizational maintenance shall be reported to field maintenance, 3d echelon.

22. Starter Fails to Crank Engine

Probable cause	*Possible remedy*
Starter switch defective	Replace starter switch (par. 92).
Poor electrical connection	Clean and tighten battery cables and other electrical connections (par. 80).
Battery discharged	Replace batteries (par. 80).
Starter brushes worn	Replace starter brushes (par. 86).
Starter solenoid defective	Replace starter solenoid (par. 85).

23. Engine Hard to Start or Fails to Start

Probable cause	*Possible remedy*
Battery charge low	Recharge or replace batteries (par. 80).
Fuel lines clogged	Clean fuel lines (par. 69).
Fuel injection pump defective.	Replace fuel pump. Report this condition to field maintenance, 3d echelon.
Fuel injectors dirty	Replace fuel injectors (par. 65).
Rocker arm clearance incorrect.	Adjust the rocker arms (par. 101).
Injection pump timing incorrect.	Time injection pump. Report this condition to field maintenance, 3d echelon.
Starter defective	Replace starter (par. 86).
Defective air cleaner	Repair air cleaner (par. 63).
Fuel tank valve closed	Open fuel tank valve.

24. Engine Misses or Runs Erratically

Probable cause	*Possible remedy*
Rocker arm clearance incorrect.	Adjust rocker arms (par. 101).
Fuel injectors defective	Replace fuel injectors (par. 65).
Fuel pump defective	Replace fuel pump. Report this condition to field maintenance 3d echelon
Engine temperature too high (safety device operated).	Remove and test thermostats (par. 107). Repl defective thermost (par. 107).
Oil pressure low (safety switch operated).	Inspect for and repair le in oil lines (par. 75).
Engine safety switch defective.	Replace engine saf switch (par. 91).
Overspeed governor defective.	Replace overspeed gover (par. 90).

26. Engine Overheats

Probable cause	*Possible remedy*
Thermostat defective	Replace thermostats (pa 107).
Fan belts worn and slipping on pulley.	Replace fan belts (par. 104
Injection pump timing incorrect.	Time injection pump. R port to field maintenanc 3d echelon.
Back pressure in exhaust system.	Inspect for restrictions muffler and exhaust sy tem (par. 77).
Defective water pump	Replace water pump (pa 105).

27. Engine Lacks Power

Probable cause	*Possible remedy*
Fuel injector defective	Replace fuel injectors (par 65).
Fuel injection pump defective.	Replace injection pump. Report this condition to field maintenance, 3d echelon.
Restricted fuel supply or air in system.	Remove fuel line and clean (par. 69). Bleed fuel system (TM 5-3820-205-10/2).

28. Engine Will Not Idle Smoothly

Probable cause	*Possible remedy*
Rocker arm clearance incorrect.	Adjust rocker arms (par. 101).
Engine operating temperature low.	Replace defective thermostat (par. 107).
Defective fuel injectors	Replace fuel injectors (par. 65).
Fuel pump defective	Replace fuel pump. R

ocker arm clearance incorrect.	Adjust rocker arms (par. 101).
Vorn main or con necting rod bearings. Loose piston pin. Broken piston or ring, loose or worn timing gears.	Replace as necessary. Report this condition to field maintenance, 3d echelon.
njection pump timing incorrect.	Time fuel pump. Report this condition to field maintenance, 3d echelon.

0. Engine Has Low or No Oil Pressure

Probable cause	*Possible remedy*
il pressure gage defective.	Replace gage (par. 87).
il pressure gage line clogged or broken.	Clean or replace oil line (par. 87).
irt in oil cooler bypass valve or broken spring.	Clean valve and replace spring if necessary (par. 72).
il too light or diluted	Drain and replace with recommended grade lubricant. Refer to LO 5-3820-205-20/2.

1. Exhaust Smoke Excessive

Probable cause	*Possible remedy*
ngine temperature low	Replace thermostat (par. 106).
uel injectors defective	Replace fuel injectors (par. 65).
oor grade diesel fuel	Drain fuel system and replace with proper grade fuel.
Vorn or stuck rings, or worn valve guides and seals.	Replace as necessary. Report to field maintenance, 3d echelon.
estriction in air supply	Check and clean air cleaner (TM 5-3820-205-10/2).

2. High Oil Consumption

Probable cause	*Possible remedy*
l leaks	Locate and repair leaks (par. 87).
oo high oil level maintained.	Check oil level and fill to indicated full mark on bayonet gage.
correct grade of oil	Refer to current lubrication order and fill with proper grade of oil.

level.	er level with dist water (par. 80).
Generator brushes worn or generator defective.	Replace generator bru (par. 91). Test and place generator (par.
Generator regulator defective.	Test and replace gener regulator (par. 83).
Connections in wiring shorted or loose.	Check all wiring for sh or loose connections (83 and 84).

34. Power Takeoff Clutch Slips or Grabs

Probable cause	*Possible remedy*
Clutch out of adjustment	Adjust clutch (TM 5-3 205-10/2).
Worn clutch plate lining, broken throwout yoke or springs, oil soaked lining. Warped clutch plates.	Replace as necessary. port this condition to maintenance, 3d echel

35. Discharge Conveyor Inoperative

Probable cause	*Possible remedy*
Conveyor electric motor belts worn or broken.	Replace worn or br belts (par. 129).
Drive sheave on conveyor motor or gear reducer defective.	Replace defective sh (par. 159).
Defective gear reducer	Replace defective gear ducer (par. 159).
Electric motor starting switch defective or defective wiring.	Replace electric motor st ing switch (par. Repair defective wi (par. 129).

36. Grooves or Cuts Appearing in Conveyor Belt

Probable cause	*Possible remedy*
Discharge conveyor hopper hitting belt.	Replace or repair hop Report to field mai nance, 3d echelon.
Rocks wedged between side or brack of discharge conveyor and belt.	Remove rocks.
Rock or gravel sticking to head belt scraper and return idler rollers.	Clean out rock or gravel
Roller on idler not	Check idlers for tight ro

	prior to uncrushable material entering crusher. Report broken toggle plate to field maintenance, 3d echelon.
Crusher overloaded	Slow down pan feeder, especially when heavy hard stone is being crushed.

38. Material Piling on Screen Under Grizzly

Probable cause	*Possible remedy*
Worn or slipping drive belts.	Adjust or replace drive belts (par. 128).
Defective electric motors	Inspect and replace electric motor if necessary (par. 128).
Defective rubber mounting.	Replace rubber mounting (par. 151).
Defective drive sheave or key.	Replace sheave and key (par. 128).

39. Insufficient Production

Probable cause	*Possible remedy*
Crusher running too slow	Speed up engine rpm.
Corrugation worn smooth on lower end of jaws.	Jaws should be reversed. Report this condition to field maintenance, 3d echelon.
Oversized rock being fed to crusher.	Feed smaller rock by scalping off the larger rocks before loading.

40. Pan Feeder Not Operating Properly or Inoperative

Probable cause	*Possible remedy*
Drive belts slipping or broken.	Replace drive belts (par. 127).
Defective electric motor	Replace electric motor (par. 127).
Defective feeder drive gear assembly.	Repair feeder drive gear assembly. Report to field maintenance, 3d echelon.
Defective or damaged bars, pins, or rollers.	Replace bars, pins, and rollers (par. 145).
Rocks wedged between feeder hopper chain belt.	Remove rocks.
Accumulation of dirt and sand in rollers and improper lubrication.	Clean chain belt and lubricate (LO 5-3820-205-20/2).

41. Pan Feeder Hydraulic Hoist

Insufficient, dirty, or improper grade hydraulic fluid.	Check fluid in oil tank, drain, flush and refill with proper grade fluid. (TM 5-3820-205-10/2).
Damaged or leaking oil tank.	Replace oil tank (par. 136).

42. Tail and Marker Lights Inoperative

Probable cause	*Possible remedy*
Burned out lamp	Replace lamp (pars. 122, 123, 124, and 125).
Defective wiring	Repair or replace wiring (pars. 111 and 123).
Defective trailer electrical coupling or receptacle.	Repair or replace coupling or receptacle (par. 110).

43. Brakes Faulty

Probable cause	*Possible remedy*
Slack adjusters out of adjustment.	Adjust slack adjusters (par. 174).
Defective brake hose, lines, or fittings.	Replace hose (par. 142). Repair or replace line or fittings (par. 143).
Worn or oil soaked brake assemblies.	Replace brake assemblies (par. 175).
Defective air chamber	Replace air chamber (par. 139).
Damaged or defective relay valve.	Replace relay valve (par. 140).
Clogged or defective air filters.	Service air filters (TM 5-3820-205-10/2) or replace air filters (par. 141).
Leaking or damaged air tank or fittings.	Replace air tank or fittings (pars. 142 and 143).

44. Unable to Adjust Moveable Jaw

Probable cause	*Possible remedy*
Broken or defective adjusting worm and gears.	Replace worm and gears. Report this condition to field maintenance, 3d echelon.
Broken toggle plate	Replace toggle plate. Report to field maintenance, 3d echelon.

45. Crusher Vibrates Excessively

ld where supplies and repair parts are not ailable and normal corrective action cannot performed. When this condition exists, the llowing expedient repairs may be used in ergencies, upon the decision of the unit com-nder. Equipment so repaired must be re-oved from operation as soon as possible and operly repaired before being placed in opera-n again.

. Engine Stops or Runs Erratically

Trouble	*Expedient remedy*
ogged fuel filter	Removed clogged filter element (par. 67). Connect fuel lines together bypassing filters.

	housing (par. 107) operate without ther stat.

49 Conveyors Will Not Operate When Start Button is Depressed

Trouble	*Expedient remedy*
Defective START and STOP electrical motor pushbutton control.	Remove electrical wire f rear of defective p button (par. 131) contact wires direct, passing the button. erate motors from main electrical co panel until a new p button can be obtain

Section VI. RADIO INTERFERENCE SUPPRESSION

. General Methods Used to Attain Proper Suppression

Essentially suppression is attained by pro-ding a low resistance path to ground for ay currents. The methods used include ielding the ignition and high-frequency res, grounding the frame with bonding raps, and using capacitors and resistors. For neral information on radio interference sup-ession, see TM 11–483.

. Interference Suppression Components

a. Primary Suppression Components. The gine-to-frame bonding strap is illustrated on ure 9.

b. Secondary Suppression Components.

(1) *Tooth-type lockwashers.* Tooth-type lockwashers are used to assure a good metal-to-metal contact where electrical components are mounted.

(2) *Shielded cable.* The generator is equipped with a shielded cable connecting the generator and generator regulator.

2. Replacement of Suppression

ing the bolt (5), washers (6), and nut that secure it to the timing gear cover (1) the engine frame (4). Install a new bond strap and mounting hardware. Be certain a good metal-to-metal contact.

b. Secondary Suppression Components.

(1) *Tooth-type lockwashers.*

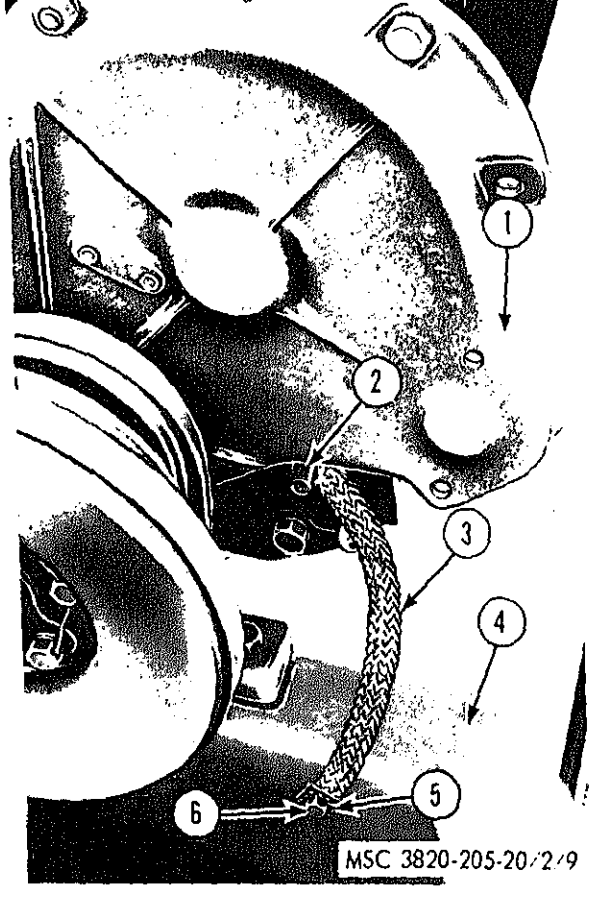
(*a*) If proper suppression is to be tained, it is necessary that a g metal-to-metal contact is obtai by tightening the mounting ha ware employing tooth-type lo washers.

(*b*) For replacement of tooth-type lo washers, refer to paragraphs 83, and 86.

(2) *Shielded cable.* Replace the shiel generator-to-generator regulator ca (pars. 83 and 84).

53. Testing of Radio Interference Suppression Components

Test the capacitors for leaks and shorts c capacitor tester; replace defective capacit If test equipment is not available and in ference is indicated, isolate the cause of in



1 Timing gear cover
2 Nut, 5/16–18
3 Bonding strap
4 Engine frame
5 Bolt, machine, 5/16–18 x 3/4 in.
6 Washer, lock, ET, 5/16 in.

Figure 9. Radio interference suppression components.

CHAPTER 4

ENGINE MAINTENANCE INSTRUCTIONS

Section I. MANUAL AND MECHANICAL CONTROLS AND INSTRUMENTS

. General

The location and purpose of the controls and struments are given in TM 5-3820-205-10-2.

. Engine Clutch Levers

a. Removal. Remove the two engine clutch ers as instructed on figure 10.

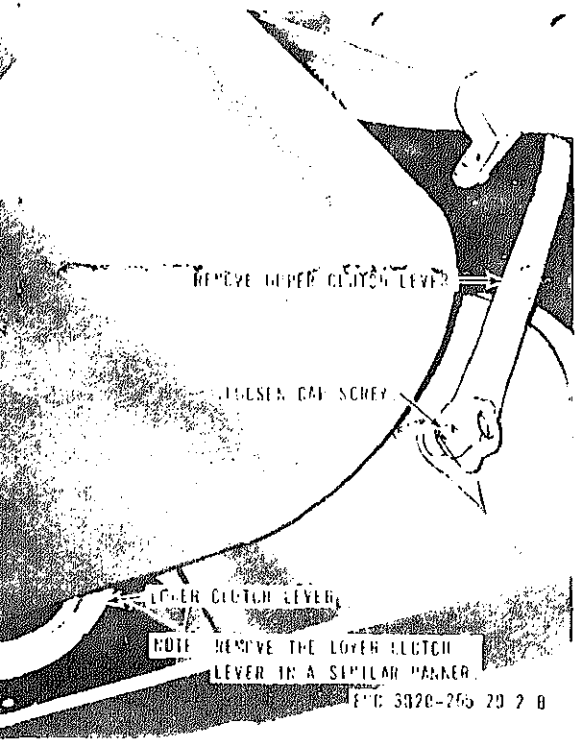


Figure 10. Engine clutch levers, removal and installation.

56. Throttle Control Lever

a. Removal.

(1) Disconnect the throttle control ca from the fuel injection pump as structed on figure 11.

(2) Remove the throttle control le from the instrument panel as instr ed on figure 12.

b. Cleaning and Inspection. Clean and spect all parts for damage. Replace as ne sary.

c. Installation.

(1) Install the throttle control lever the instrument panel in reverse o structions on figure 12.

(2) Connect the throttle control cable the fuel injection pump as instru on figure 11.

57. Tachometer-Hourmeter and Drive

a. Removal. Remove the tachometer-h meter and drive from the instrument panel engine as instructed on figure 11 and 12.

b. Disassembly. Disassemble the tachom drive as illustrated on figure 13.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts in an approved cl ing solvent and dry thoroughly.

(2) Inspect the tachometer-hourmeter broken glass, and defective drive ble. Replace a defective tachome hourmeter and drive cable.

(3) Inspect the tachometer drive

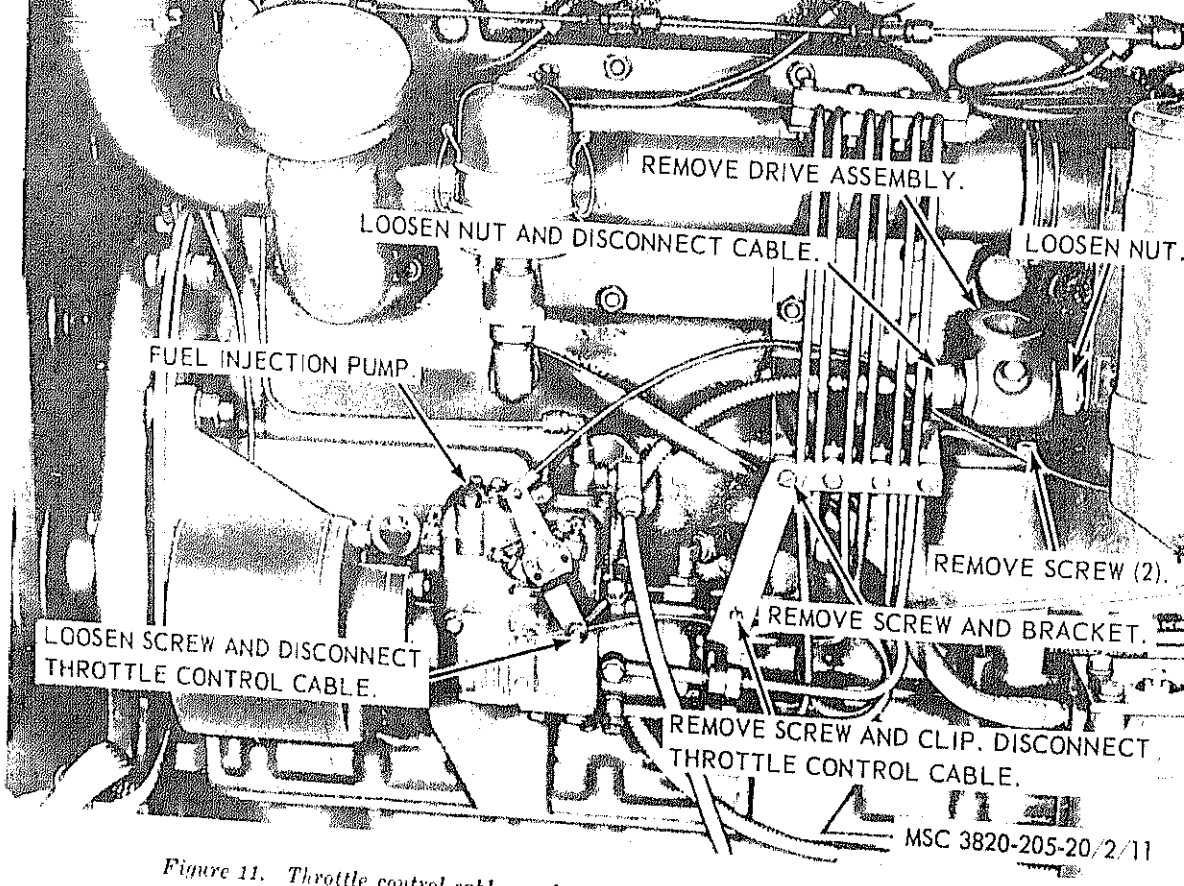


Figure 11. Throttle control cables and tachometer drive, removal and installation.

c. Installation. Install the tachometer-hourmeter and drive on the instrument panel and engine in reverse of the instructions on figures 11 and 12.

58. Fuel Gage

a. Removal. Remove the fuel gage as instructed on figure 14.

b. Cleaning and Inspection. Clean and inspect the fuel gage for damage. Replace a damaged gage.

c. Installation. Install the fuel gage in reverse of instructions on figure 14.

59. Fuel Pumps

a. Removal. Re[illegible]

spect all parts for damage. Replace if necessary.

c. Installation.

(1) Install the fuel primer and secondary fuel filter in reverse of instructions on figure 15.

(2) Bleed the fuel system (TM 5–3820–205–10/2).

60. Air Cleaner Indicator

a. Removal. Remove the air cleaner indicator as instructed on figure 16.

b. Cleaning and Inspection. Clean and inspect all parts. Inspect the air[illegible]

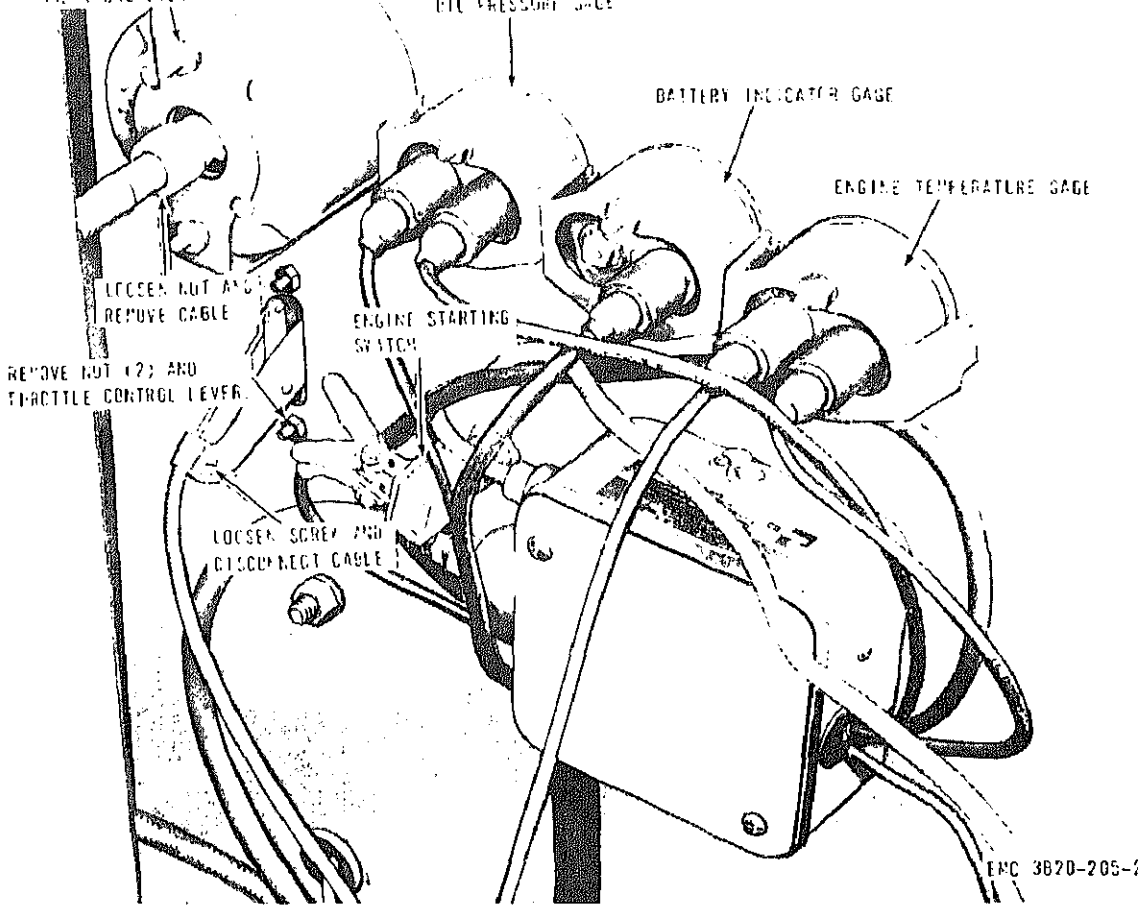


Figure 12. Instrument panel, rear view.

61. Hand Cranking Assembly

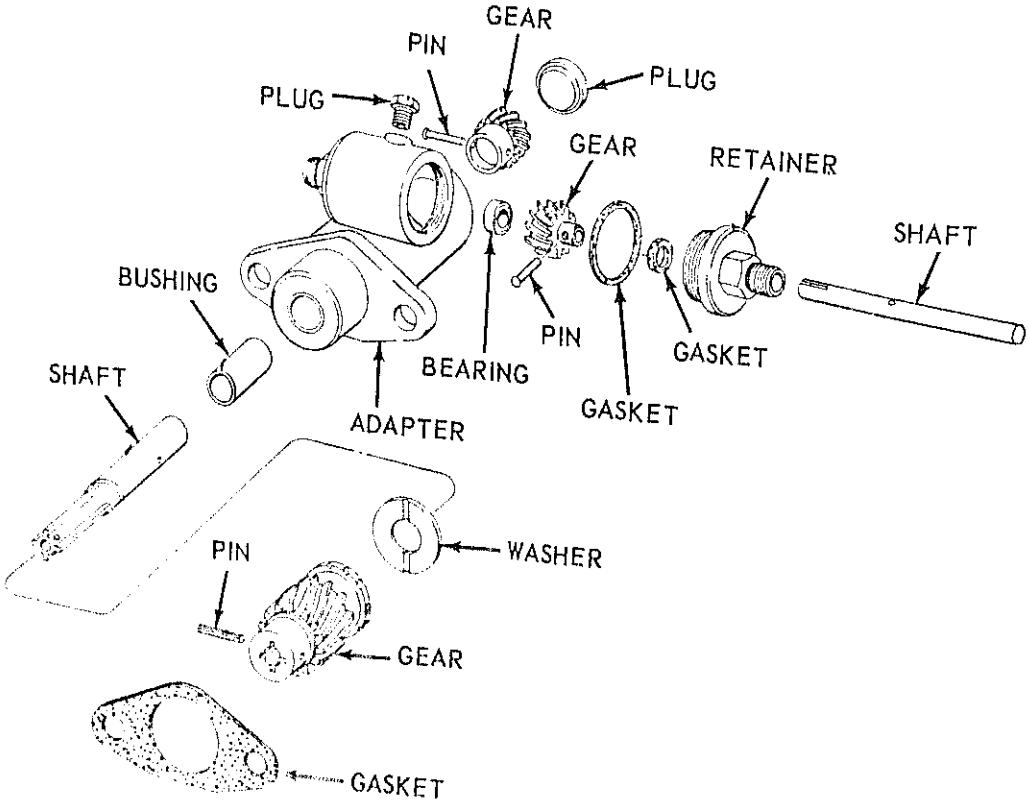
a. Removal. Remove the hand cranking assembly from the engine as instructed on figure 17.

d. Disassembly. Disassemble the hand cranking assembly as illustrated on figure 18.

c. Cleaning, Inspection, and Repair. Clean and inspect. Replace or repair worn, da or defective parts as necessary.

d. Reassembly. Reassemble the hand ing assembly illustrated on figure 18.

e. Installation. Install the hand cranl sembly on the engine in reverse of the i tions on figure 17.


GEAR
PIN
PLUG
PLUG
GEAR
RETAINER
SHAFT
BUSHING
PIN
GASKET
BEARING
SHAFT
ADAPTER
GASKET
WASHER
PIN
GEAR
GASKET

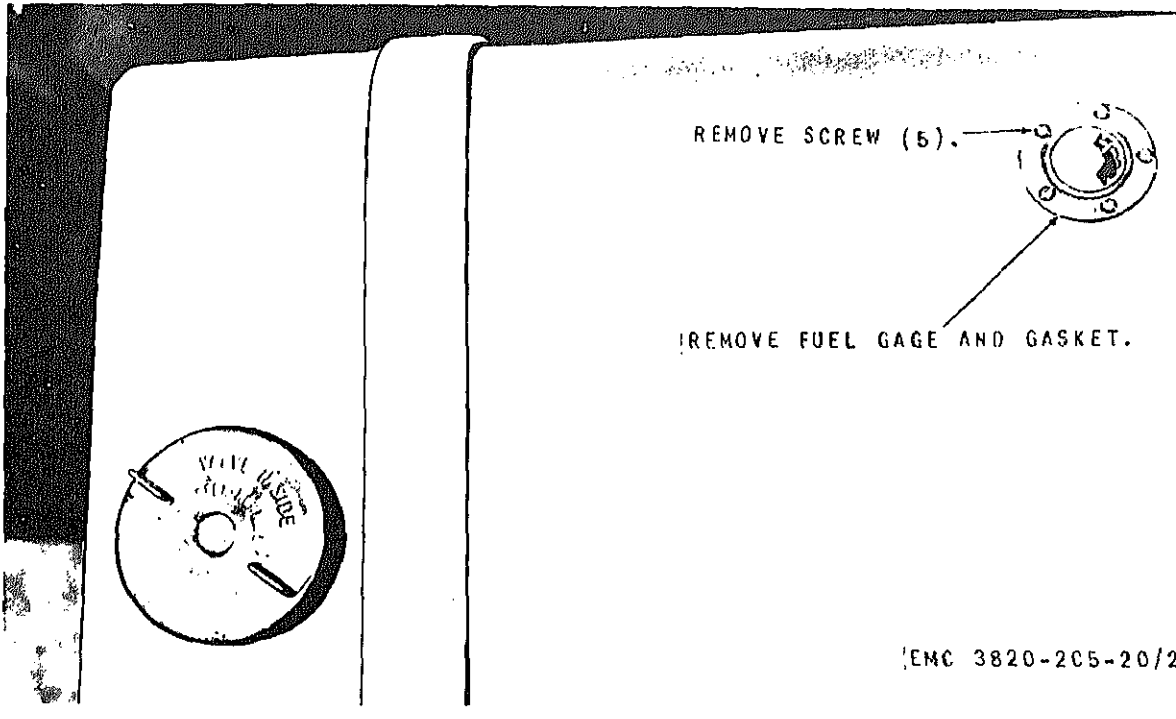
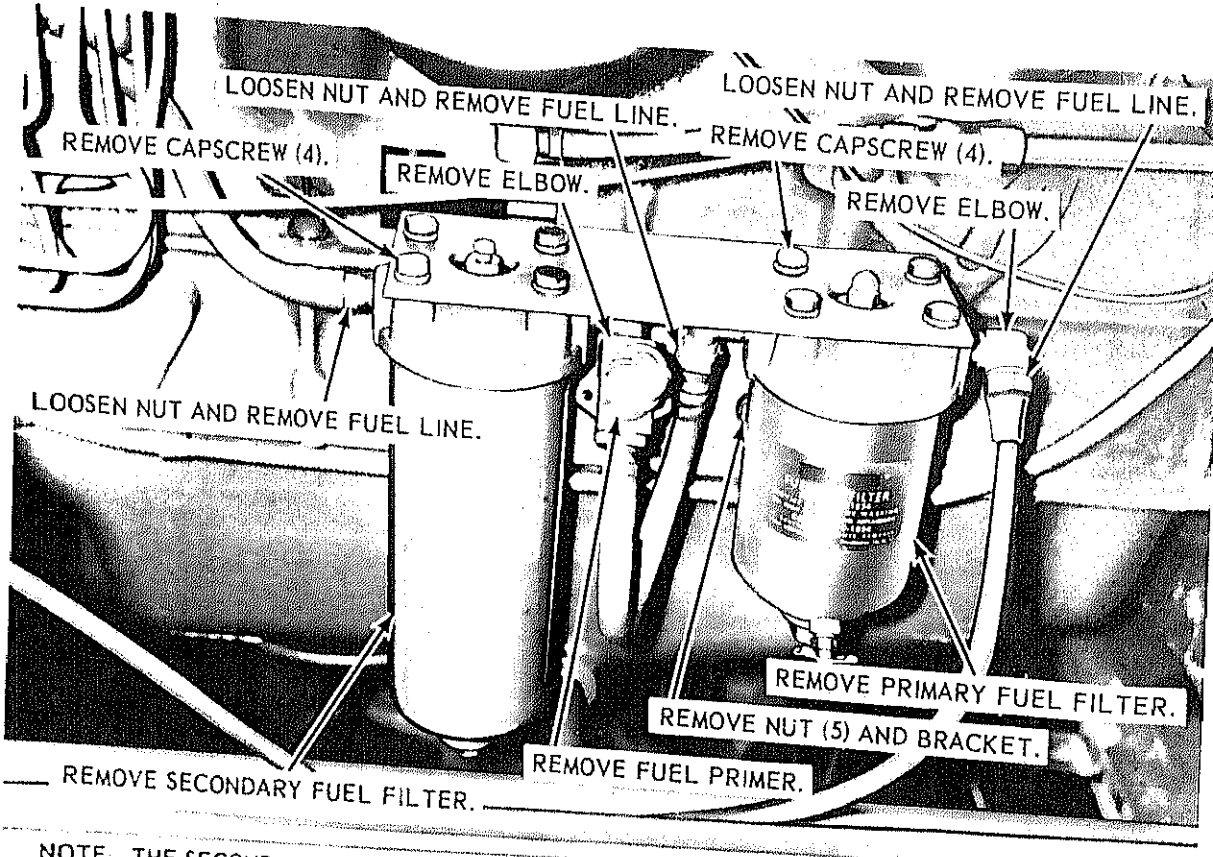


Figure 14. Fuel gage, removal and installation.



NOTE. THE SECONDARY FUEL FILTER MUST BE REMOVED TO REMOVE THE FUEL PRIMER.

NOTE. DRAIN PRIMARY FUEL FILTER.

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Figure 15. Fuel primer and fuel filters, removal and installation.

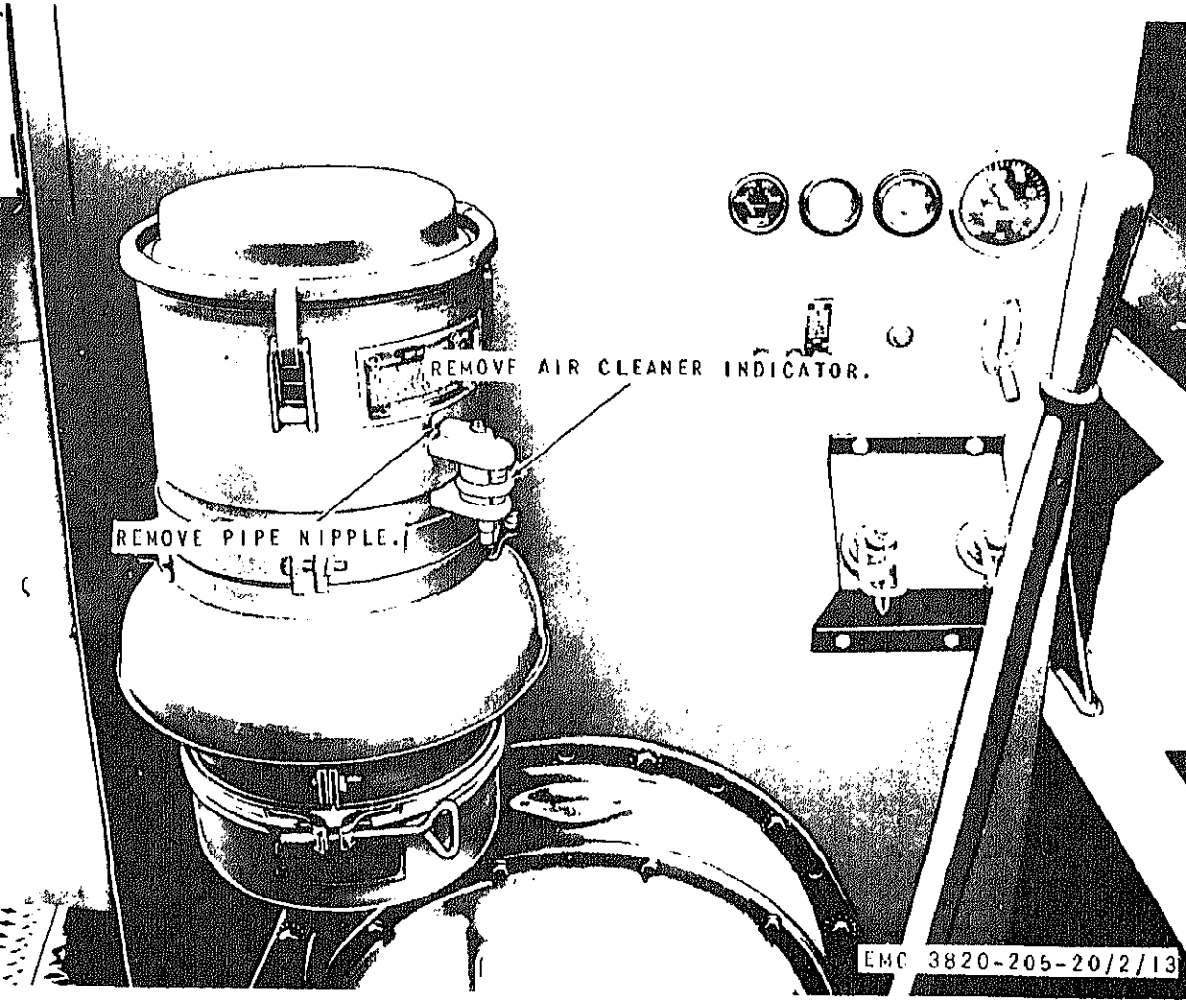


Figure 16. Air cleaner indicator, removal and installation.

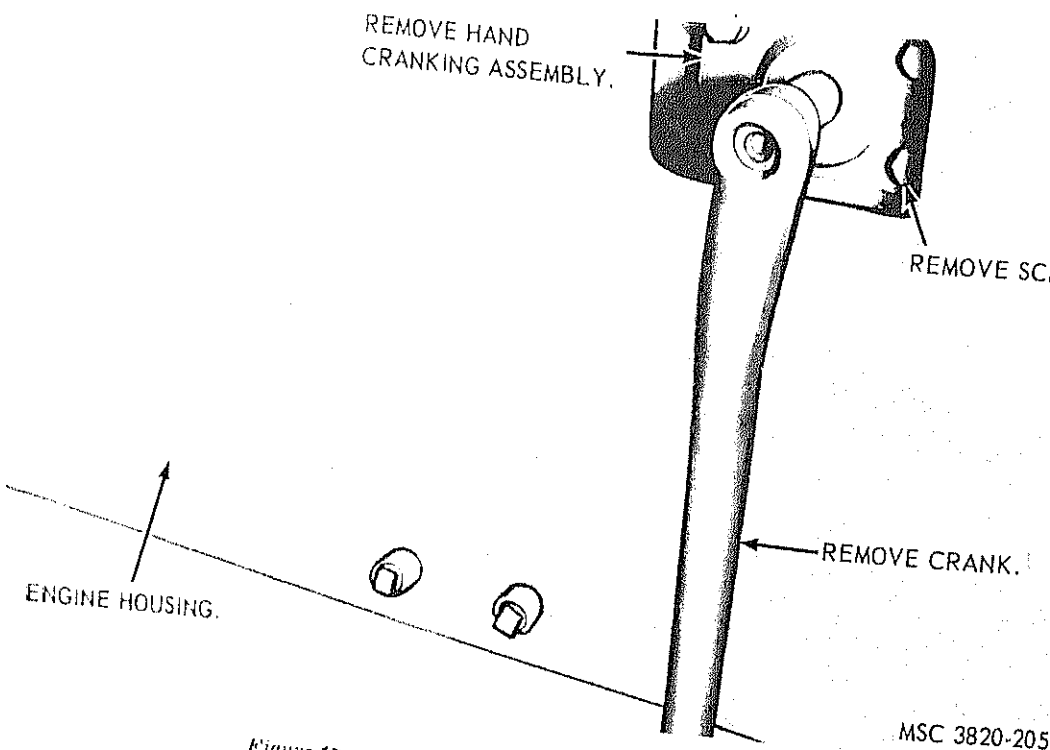
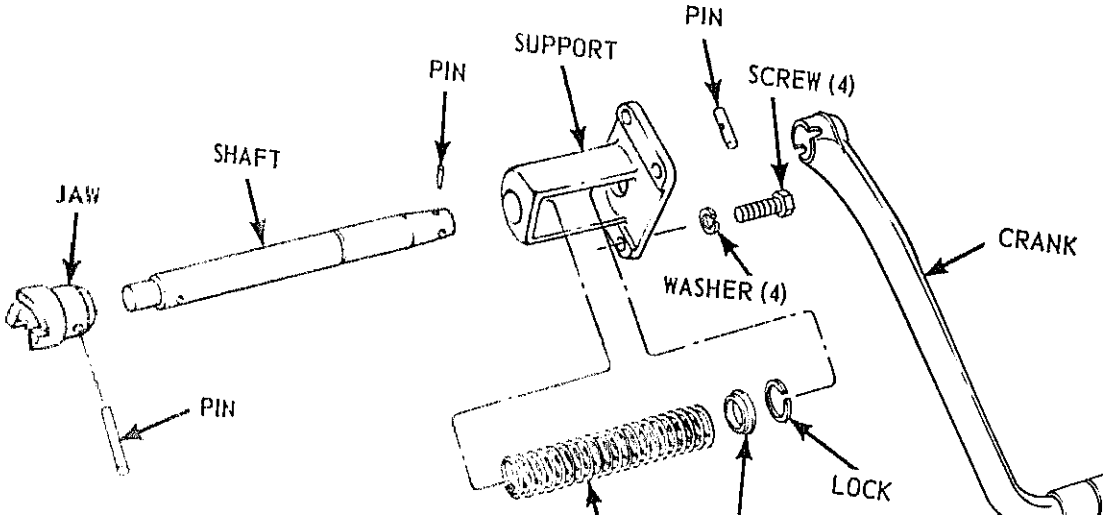


Figure 17. Hand cranking assembly, removal and installation.



The diesel fuel system consists of a 100-gal- fuel tank, primary fuel filter, secondary el filter, fuel primer, fuel injection pump, gine overspeed governor, fuel injectors, air aner, intake manifolds, ether starting aids, d the necessary lines and fittings for dis- ibuting the diesel fuel to the components of e fuel system.

. Air Cleaner

a. Removal. Remove the air cleaner and pe as instructed on figure 19.

b. Disassembly.

(1) Remove the air cleaner indicator (par. 60).

(2) Disassemble the air cleaner as illustrated on figure 20.

c. Cleaning, Inspection, and Repair. Clean d inspect all parts. Replace gaskets. Repair replace all damaged parts.

d. Reassembly.

(1) Reassemble the air cleaner as illustrated on figure 20.

(2) Install the air cleaner indicator (par. 60).

e. Installation. Install the air cleaner and pe in reverse of instructions on figure 19.

. Intake Manifolds

a. Removal.

(1) Remove the air cleaner pipe (par. 63).

(2) Remove the two intake manifolds as instructed on figure 21.

b. Cleaning and Inspection. Clean and in- ect all parts. Replace any damaged or de- tive parts.

c. Installation.

(1) Install the two intake manifolds in reverse of instructions on figure 21.

Note. Correct torque for manifold nuts is 50–55 foot-pounds.

(2) Install the air cleaner pipe (par. 63).

an injector nozzle valve sticking open in cylinder which immediately precedes that inder in the engine firing order. During jection to the cylinder which has the no valve sticking open, fuel rushes into that inder with no restriction, causing a scaveng effect in the pump distributor rotor. T causes a partial loss in fuel pressure to the lowing injector, the nozzle fails to open, combustion does not occur in that cylinder

b. On-Equipment Testing.

(1) Start and operate engine at idle sp (TM 5–3820–205–10/2).

(2) Momentarily loosen injector fuel assembly (fig. 5) on each injecto turn. Note fuel injector where loos ing of fuel line assembly causes effect on engine operations.

Warning: **Keep hands away from caping fuel spray when loosening jector fuel line assemblies.**

(3) Stop the engine and replace the jector noted in (2) above.

(4) Start the engine as in (1) above. the operation is still erratic, determ the firing order (par. 4*b*) and rep injector that injects immediately p to fuel injector found in (2) above

c. Removal. Remove the six fuel injec as instructed on figure 21.

d. Cleaning and Inspection. Clean and spect all parts. Replace the gaskets and damaged parts.

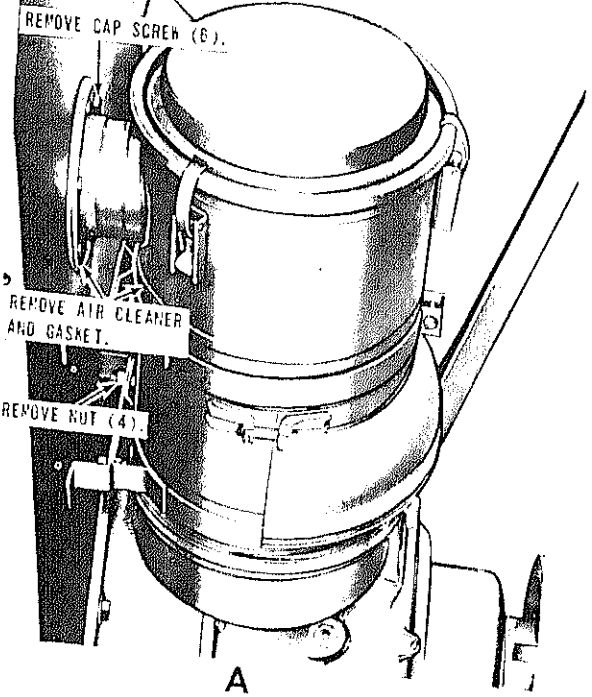
e. Installation. Install the fuel injector reverse of instructions on figure 21.

f. Testing.

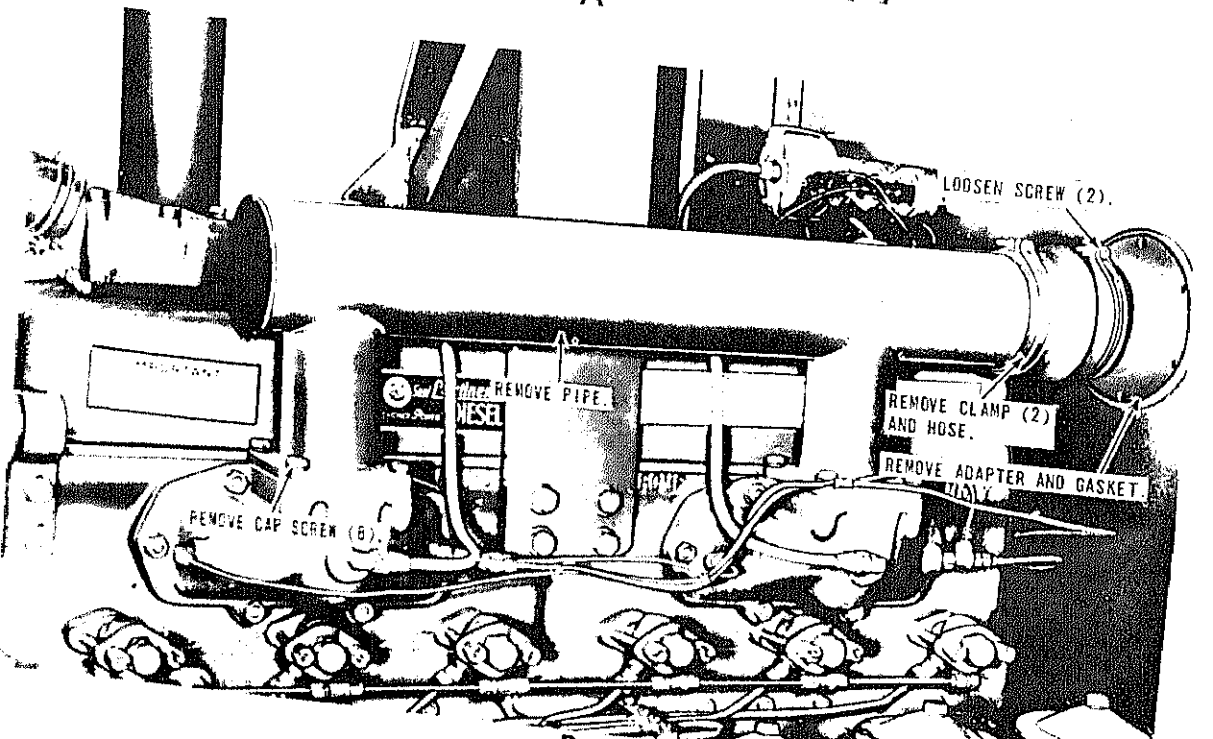
(1) Remove one fuel injector from engine, leaving the fuel line conne to the fuel injection pump.

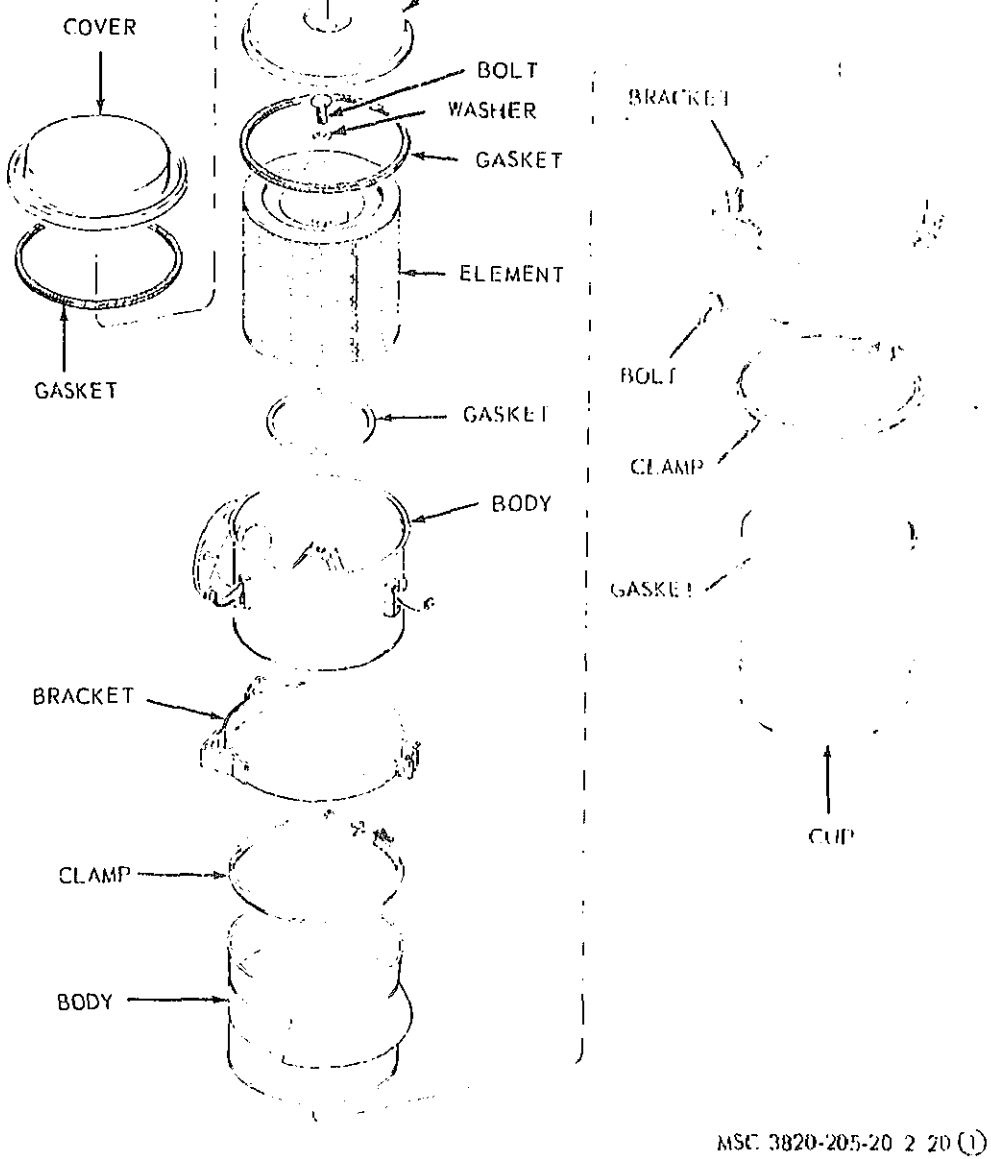
(2) Start the engine (TM 5–3820–2 10/2).

(3) Hold a target 12 inches from the


REMOVE CAP SCREW (6).
REMOVE AIR CLEANER AND GASKET.
REMOVE NUT (4).

A


LOOSEN SCREW (2).
REMOVE PIPE.
REMOVE CLAMP (2) AND HOSE.
REMOVE ADAPTER AND GASKET.
REMOVE CAP SCREW (6).



1 Serial Nos. 2050 through 2087

Figure 20. Air cleaners, exploded view.

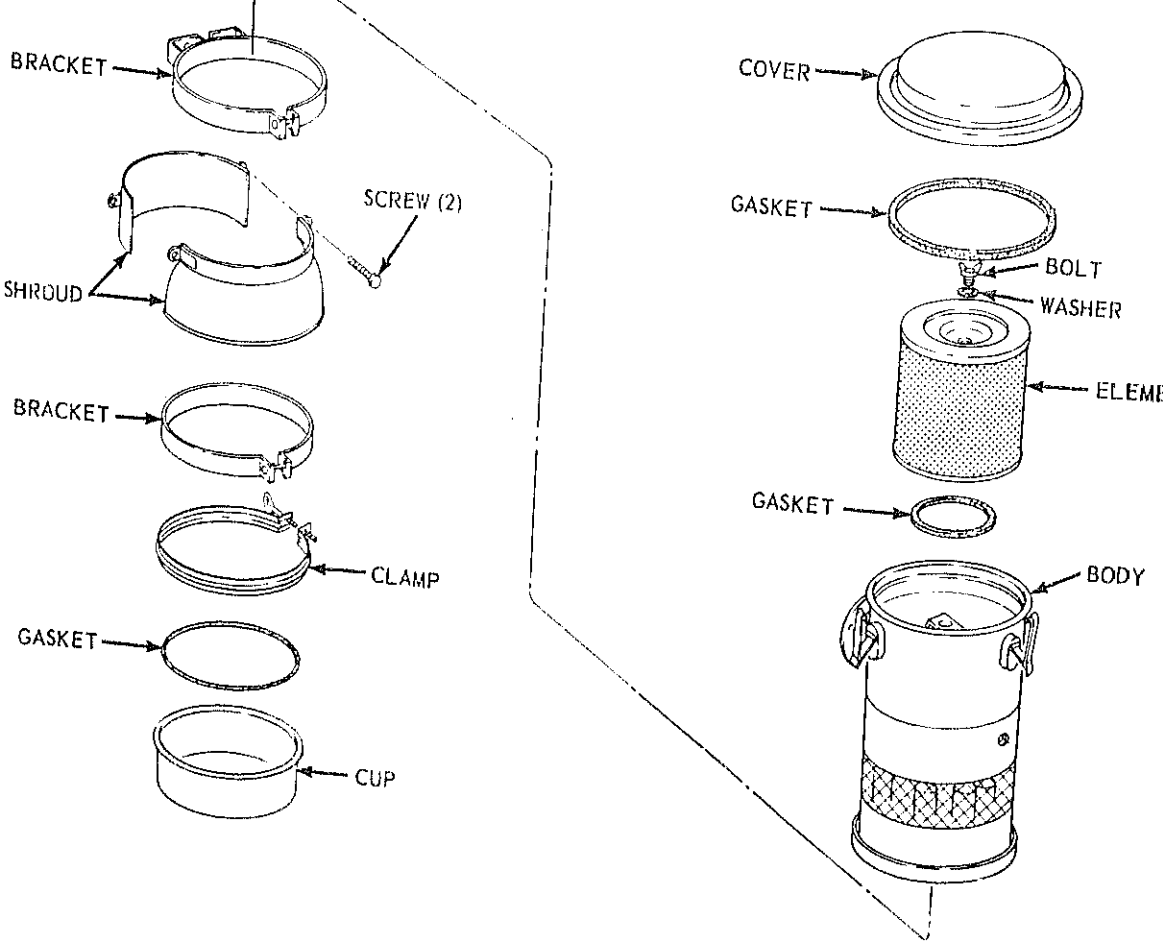
(5) Test the remaining fuel injectors in a similar manner.

(6) Stop the engine (TM 5-3820-205-

66. Ether Starting Aids

a. Removal.

(1) Remove the ether starting aids



[1] Serial Nos. 2030 through 2129

Figure 20—Continued.

e. Installation.

(1) Install the ether starting aid lines on the intake manifold (par. 64).

(2) Install the ether starting aids and bracket in reverse of instructions on figure 22.

67. Fuel Filters

a. Removal. Remove the primary and secondary fuel filters as instructed on figure 15.

b. Cleaning and Inspection. Clean and inspect all parts. Replace

68. Fuel Tank and Cap

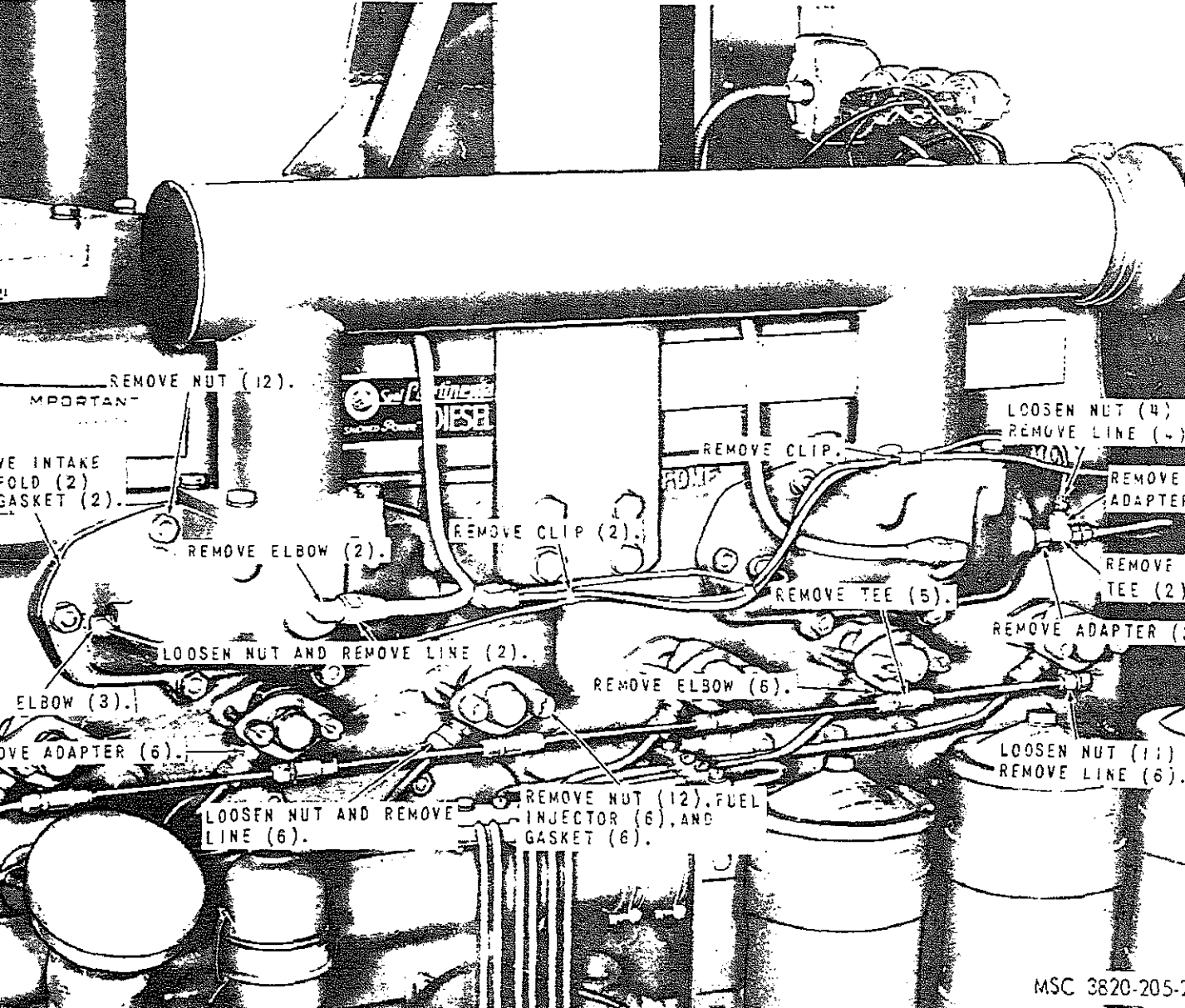
a. Removal.

(1) Remove the fuel gage (par. 58).

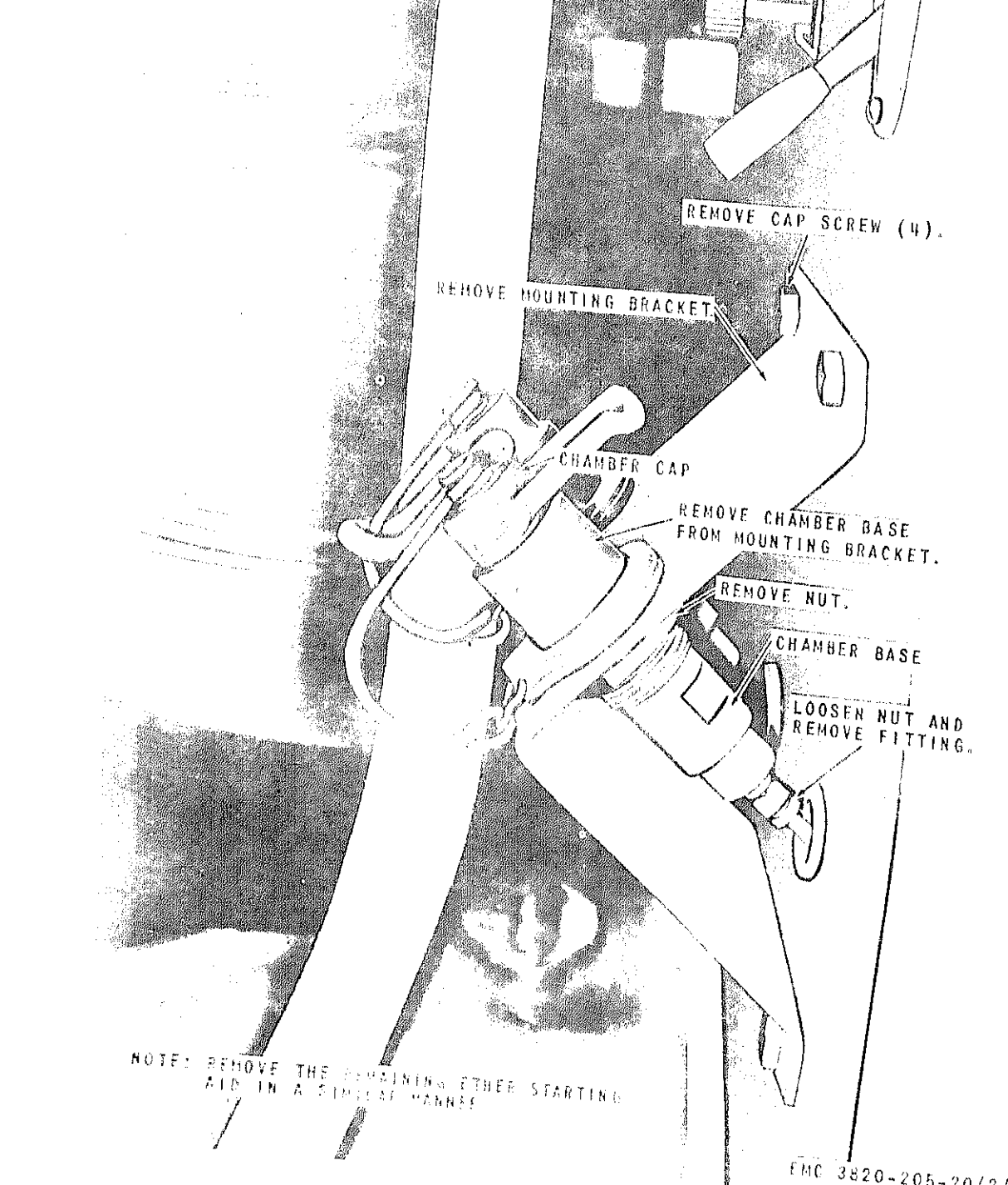
(2) Remove the fuel tank cap and strainer (TM 5-3820-205-10/2).

(3) Remove the clearance marker light (par. 125).

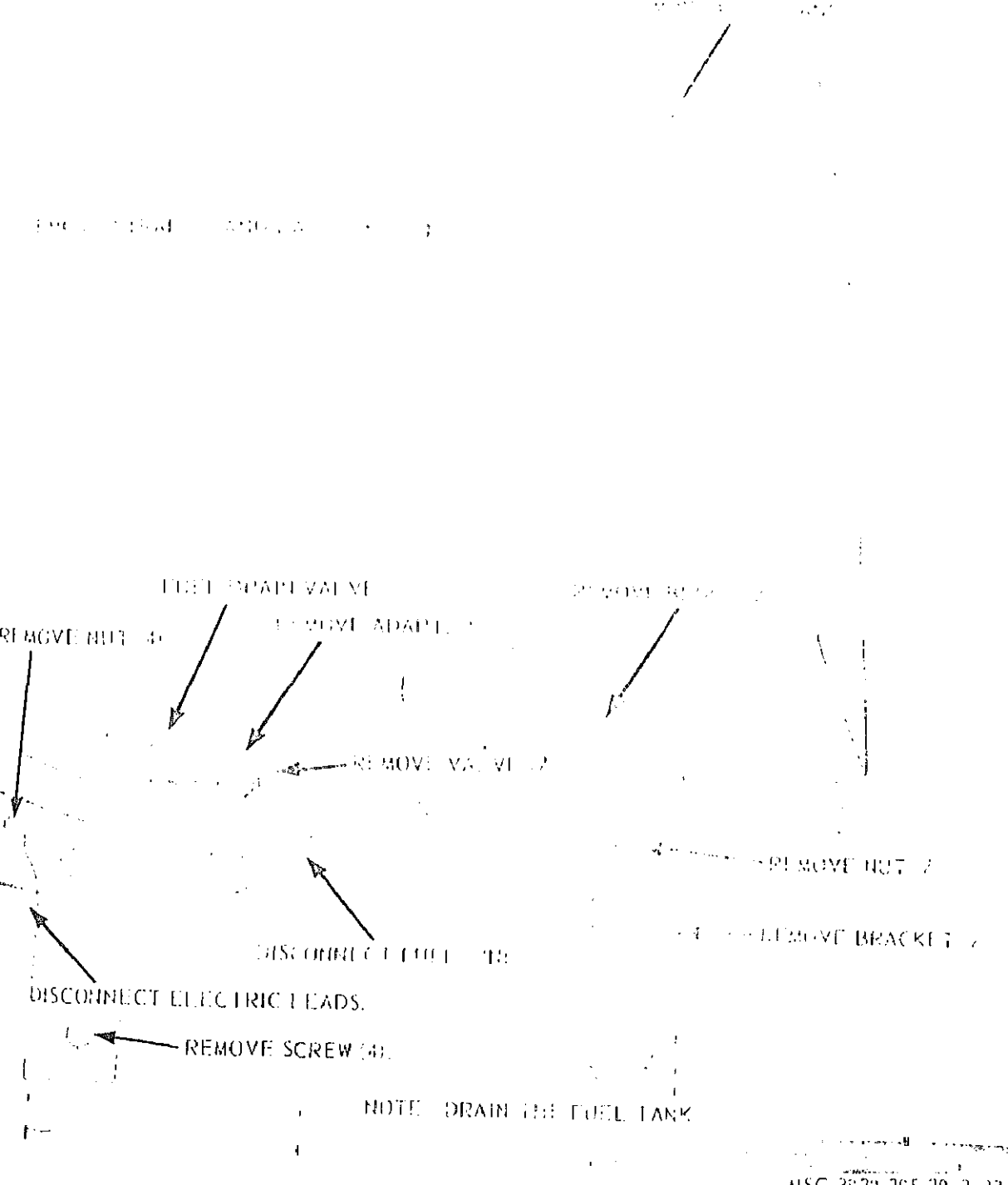
(4) Remove the fuel tank and bracket as illustrated on figure 23.



MSC 3820-205-7



NOTE: REMOVE THE REMAINING ETHER STARTING AID IN A SIMILAR MANNER.


REMOVE NUT (4)
REMOVE VALVE
REMOVE NUT
REMOVE BRACKET
DISCONNECT ELECTRIC LEADS.
REMOVE SCREW (4).
NOTE: DRAIN THE FUEL TANK

fuel tank cap and strainer
[illegible]-205-10 2).
fuel gage (par. 58).

and Fittings

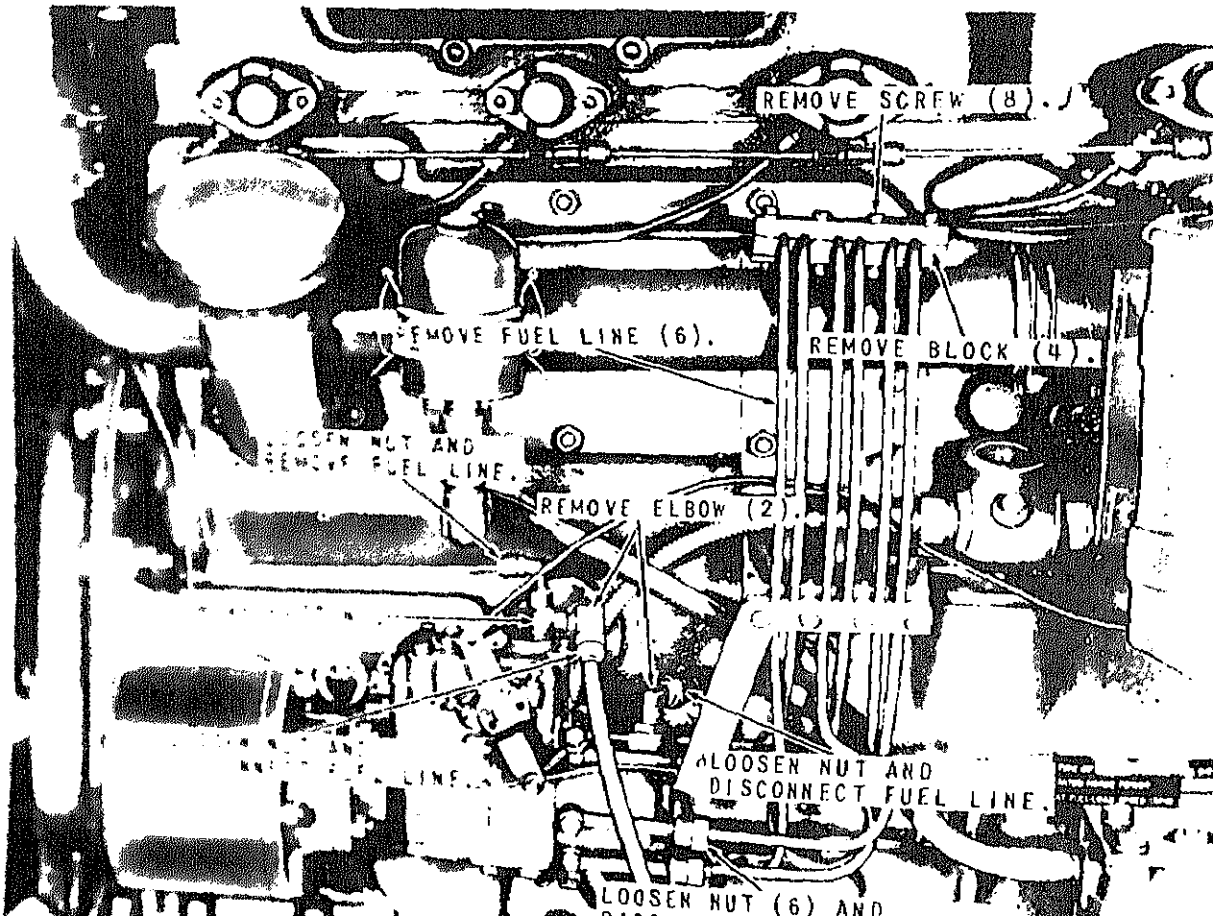
fuel lines from the fuel
[illegible]).
fuel lines from the fuel
[illegible]).
fuel lines from the fuel
[illegible]).
fuel lines from the fuel
[illegible]).

24.

b. Cleaning, Inspection, and Repair. Cle
and inspect all parts. Repair or replace da
aged parts.

c. Installation.

(1) Connect the fuel lines to the fuel
jector pump in reverse of instructio
on figure 24.
(2) Connect the fuel lines to the fuel
jectors (par. 65).
(3) Connect the fuel lines to the fu
filters (par. 67).
(4) Connect the fuel lines to the fu
primer (par. 59).



screws (fig. 5) are loosened when connecting the line assemblies, new washwill crush the copper gaskets allowi the screws to bottom.

Section III. ENGINE LUBRICATION SYSTEM

. General

The engine lubrication system is a pressurd-type. A gear-type oil pump attached to e bottom of the engine crankcase provides under pressure from the engine oil pan to e moving parts of the engine. The oil cooler pass valve allows the engine oil to continue flow through the lubrication system should e oil cooler become clogged. The engine oil filtered by three oil filters.

. Oil Filters and Mounting Bracket

a. Removal. Remove the oil filters and ounting bracket as instructed on figure 25.

b. Cleaning and Inspection. Clean and spect the oil filters and bracket. Replace damaged parts.

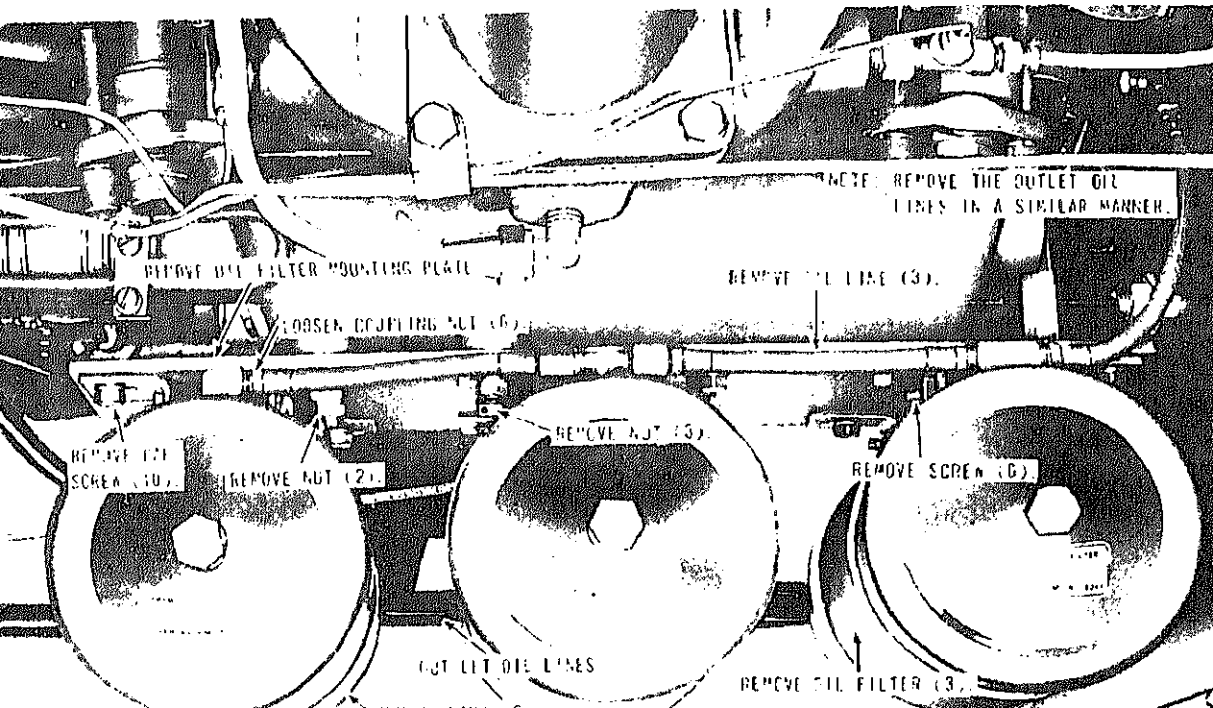
c. Installation. Install the oil filters a mounting bracket in reverse of instruction figure 25.

72. Oil Cooler Bypass Valve

a. Removal. Remove the oil cooler bypa valve as illustrated on figure 26.

b. Cleaning and Inspection. Clean and spect all parts. Replace all worn or damag parts as necessary.

c. Installation. Install the oil cooler byp valve illustrated on figure 26.



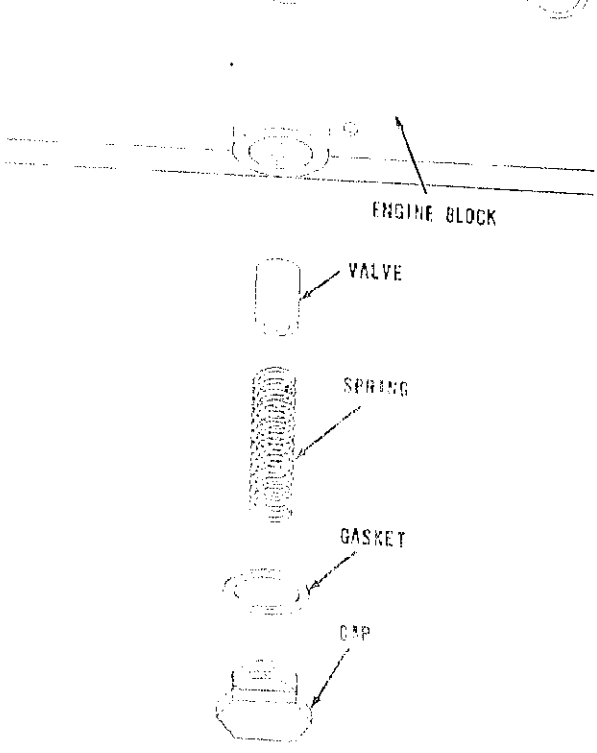


Figure 28. Oil cooler bypass valve, removal and installation.

(1) Remove the oil filters and bracket (par. 71).

(2) Remove the oil cooler as in figure 27.

b. Cleaning and Inspection. Cle spect the oil cooler. Replace if nece

c. Installation.

(1) Install the oil cooler in rev structions on figure 27.

(2) Install the mounting brack filters (par. 71).

74. Crankcase Breather

a. Removal. Remove the crankcas as instructed on figure 27.

b. Cleaning and Inspection. Clea spect the crankcase breather. Replac sary.

c. Installation. Install the crankcase in reverse of instructions on figure 2

75. Oil Lines and Fittings

a. Removal. Remove the oil lines tings (pars. 71 and 74).

b. Cleaning and Inspection. Clean spect the oil lines and fittings. Re necessary.

c. Installation. Install the oil lines tings (pars. 71 and 74).

The engine exhaust system consists of two [illegible] manifolds mounted on the left side of the cylinder head below the water manifold. The exhaust pipe extends through the hood of the engine which provides for the mounting of the muffler. Water is prevented from entering the exhaust system and cylinder head by a [illegible] cap, secured to the top of the [illegible].

77. Muffler Assembly

a. Removal. Remove the muffler in reverse [illegible] figure 7.

b. Cleaning and Inspection. Clean and inspect the muffler and clamps. Replace a defective muffler and mating clamps.

c. Installation. Install the muffler as indicated in figure 7.

78. Exhaust Pipes and Manifold

a. Removal.

(1) Remove the muffler as [illegible] 77).

(2) Remove the engine housing [illegible] ports (par. 97).

(3) Remove the exhaust pipe [illegible] folds as instructed on fig

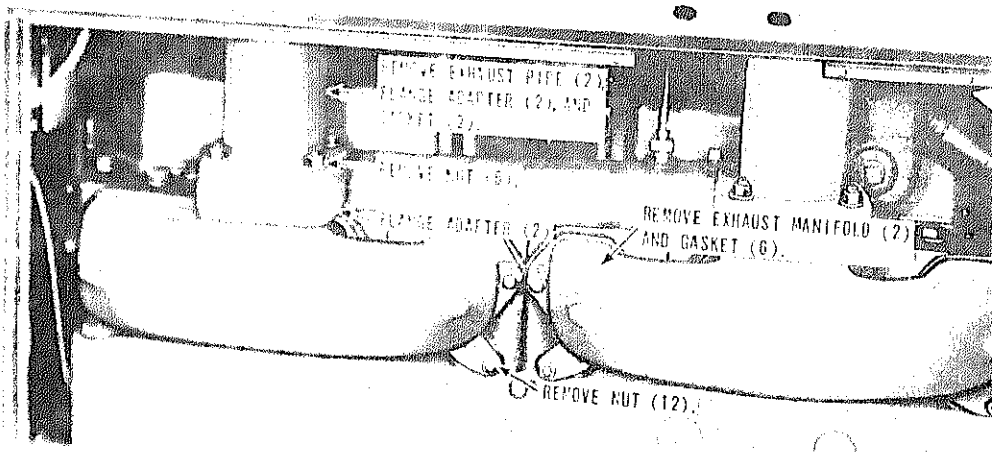
b. Cleaning and Inspection. C[illegible] spect the exhaust pipes and manifo[illegible] age. Replace damaged parts.

c. Installation.

(1) Install the exhaust pipe a[illegible] in reverse of instructions

(2) Install the engine housing [illegible] ports (par. 97).

(3) Install the muffler assembl[illegible]



The electrical system of the jaw crusher is 24-volt system which consists of four batteries, generator, generator regulator, starter, pressure gage and sending unit, water temperature gage and sending unit, battery indicator gage, overspeed governor, safety ignition switch, and the necessary wiring and connections to complete the system. Figure 1 is a wiring diagram for the jaw crusher electrical systems.

Batteries and Cables

a. Testing.

(1) Use a hydrometer to test each battery cell; each cell should read 1.280 specific gravity at 80°F. Recharge if the reading is 1.250 or less.

(2) Use a voltmeter to test each cell for voltage. Each full charged cell must deliver 2 volts. A low voltage indicates a low charge or a defective cell. Recharge the battery if the output voltage varies more than 30 percent between cells, replace the battery.

Warning: **Do not smoke or allow an open flame near charging batteries. Serious injury from explosion and acid could result. Avoid spilling electrolyte on clothing or flesh. Acid causes severe burns.**

b. Removal.

(1) Loosen locknut (fig. 6) and place clamp handle up or at right angle to battery terminal.

(2) Remove cables from battery terminals; inspect clamps for loose or corroded condition. Remove corrosion and coat battery terminals and clamps with grease.

c. Cleaning and Inspection. Clean and inspect the batteries. Replace as necessary.

d. Installation.

(1) Install the battery box in reverse instructions on figure 29.

(2) Install the batteries and cables (p 80).

82. Battery Charging Receptacle

a. Removal. Remove the battery chargi receptacle as instructed on figure 31.

b. Cleaning and Inspection. Clean and i spect the battery charging receptacle for da age or defects. Replace a defective receptac if necessary.

c. Installation. Install the battery chargi receptacle in reverse of instructions on figu 31.

83. Generator Regulator

a. Removal. Remove the generator regul tor from the jaw crusher as instructed on fi ure 32.

b. Cleaning, Inspection, and Repair. Cle and inspect. Replace a worn, damaged, or d fective generator regulator.

c. Installation. Install the generator regul tor in reverse of the instructions on figure 32

Caution: **The engine generator must be pola**

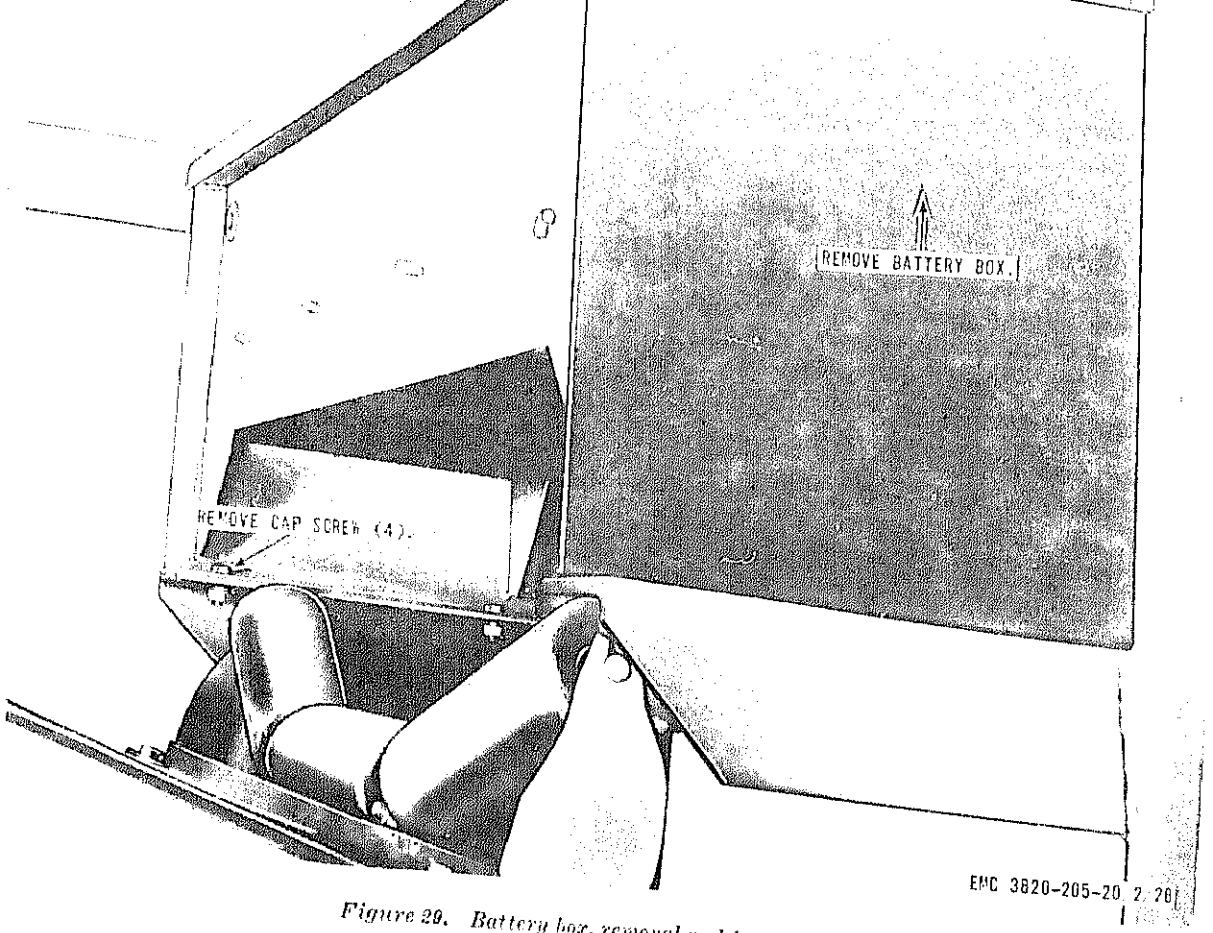


Figure 29. Battery box, removal and installation.

ibration, heavy arcing, and burning. Polarize
ne generator by disconnecting the field lead at
ne regulator and momentarily connecting a
mper lead between the generator field termi-
l and the regulator battery terminal. Remove
e jumper lead and connect field lead to the
enerator (3, fig. 33).

d. Test and Adjustment.

(1) *Mechanical adjustment.*

(*a*) Disconnect regulator-to-battery cable.

(*b*) Remove regulator cover as instructed on figure 32.

(*c*) Press down on the cut

correct air gap for the cutout relay is 0.048 inch.

Note. Do not measure the cutout relay air gap between the brass residual pin in the coil and the armature.

(*d*) Should the cutout relay air gap not be as specified, bend the armature stop up or down to obtain the proper clearance.

Caution: **Make certain the cutout relay contact bracket is in proper position to allow both contact points to close simultaneou**

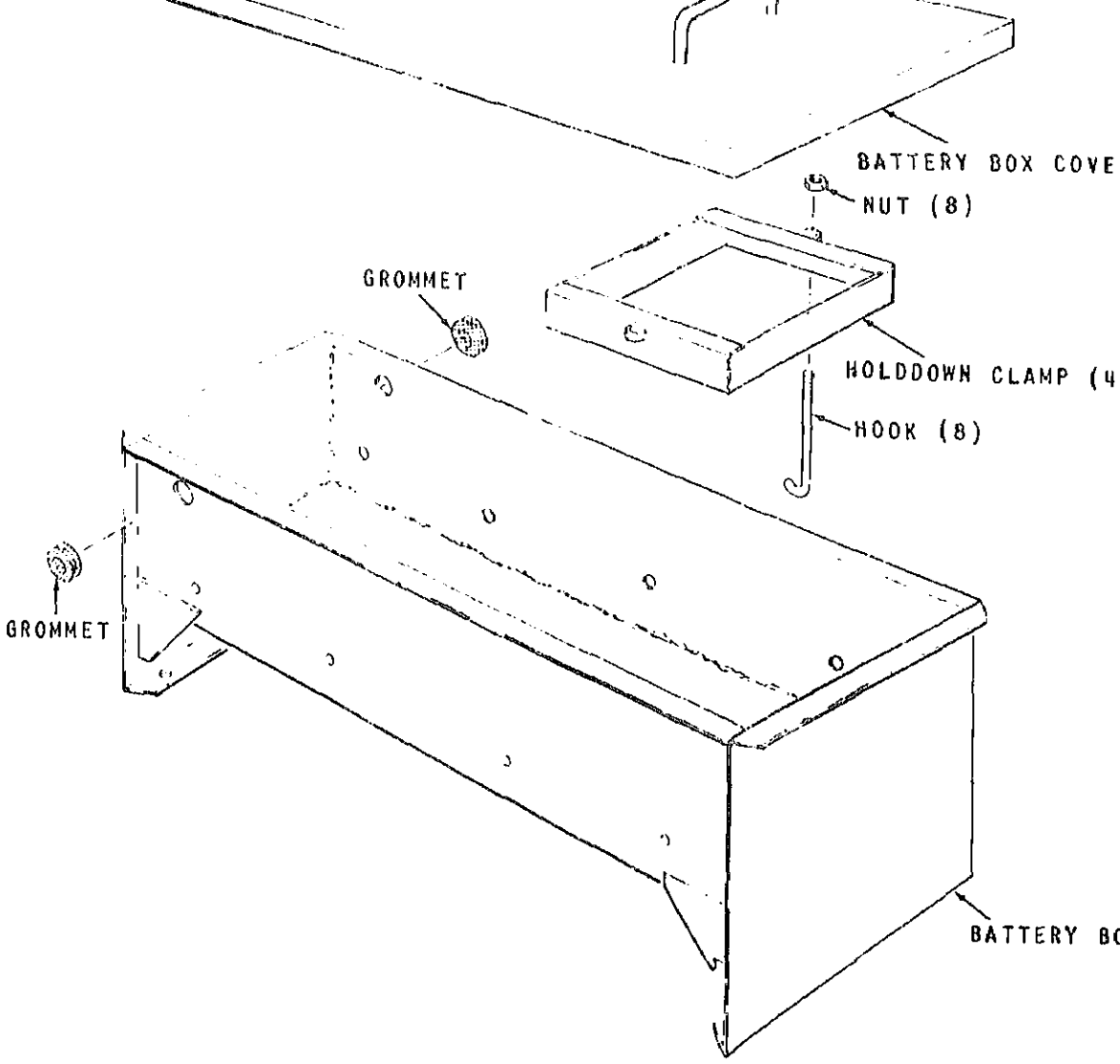


Figure 30. Battery box, exploded view.

screws securing the cutout relay contact bracket to the cutout relay and raise or lower the cutout relay contact bracket until the specified air gap is obtained. Secure the ad-

(*g*) Push down on the voltage regula armature (2, fig. 33) until the v age regulator contact point ba touches the air gap adjusting scr Measure the air gap between

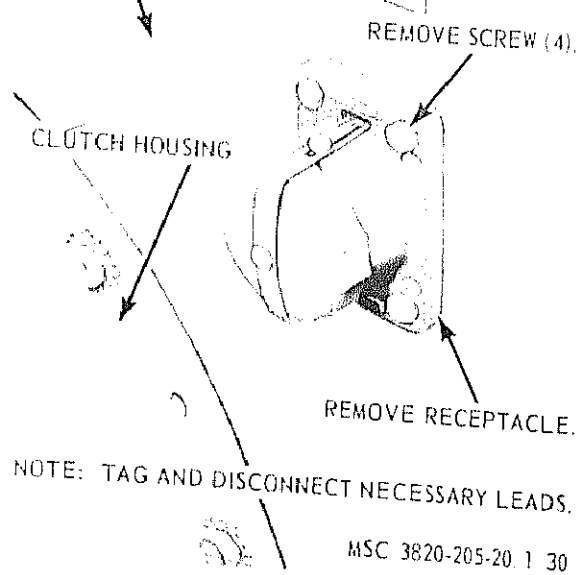


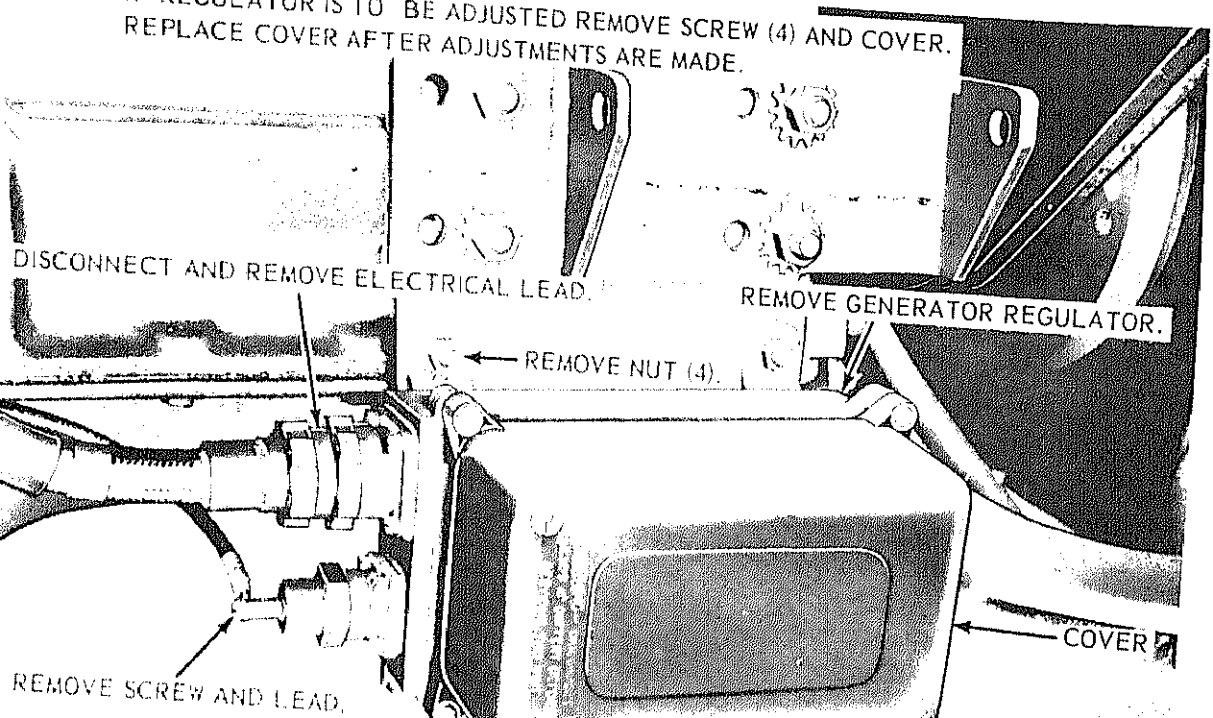
Figure 31. Battery charging receptacle, removal and installation.

(h) Adjust the current regulator air g to 0.115 inch in the same manner the voltage regulator unit was a justed, described in (g) above.

(2) *Electrical adjustments.* Install set test adapters.

Note. Refer to 3, figure 33 and polari the generator.

(a) *Cutout relay closing voltage.* Wit voltmeter connected as shown on figure 33, start the engine and slow ly increase speed until the cutou relay contact points close. Observ voltage reading at which this oc curs. It should be between 28 an 32 volts. If adjustment is neces sary, turn cutout relay adjustin screw clockwise to increase o



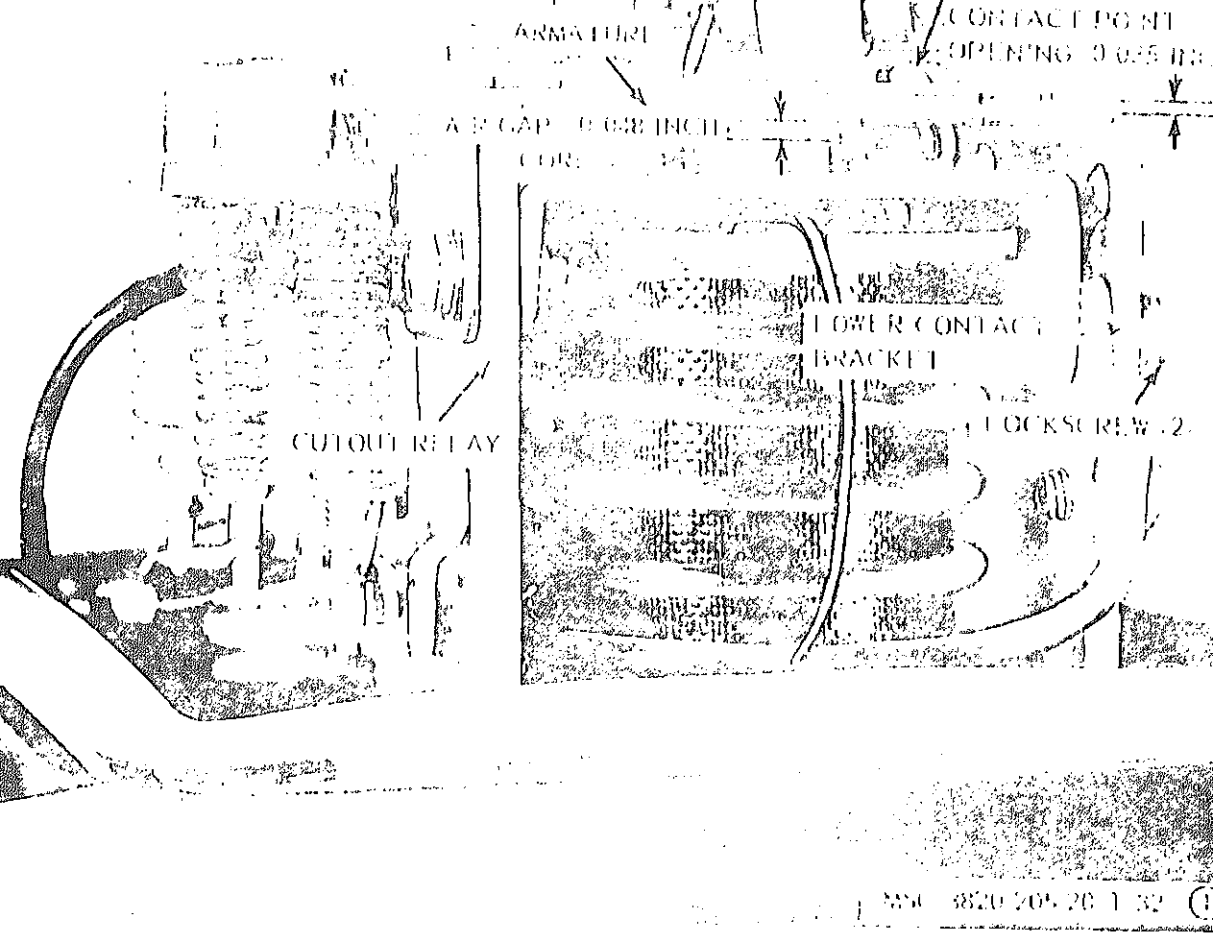


Figure 33. Generator regulator adjustment and test wiring diagram.

counterclockwise to decrease the closing voltage. Set closing voltage at 26 volts.

(*b*) *Voltage regulator opening voltage.* With voltmeter connected as shown on 5, figure 33, increase rpm to operating speed. Observe reading on voltmeter. It should read between 27.5 and 29.5 volts. If adjustment is necessary, turn the voltage regulator adjusting screw clock-

shown on 6, figure 33 and with the test set carbon pile load set at 25 to 30 amps or, first having operated the starter for 10 to seconds to provide the load, crease rpm to operating speed, serve reading on ammeter at which points first vibrate. This should between 38 and 42 amperes. If adjustment is necessary, adjust current regulator to 40 amperes

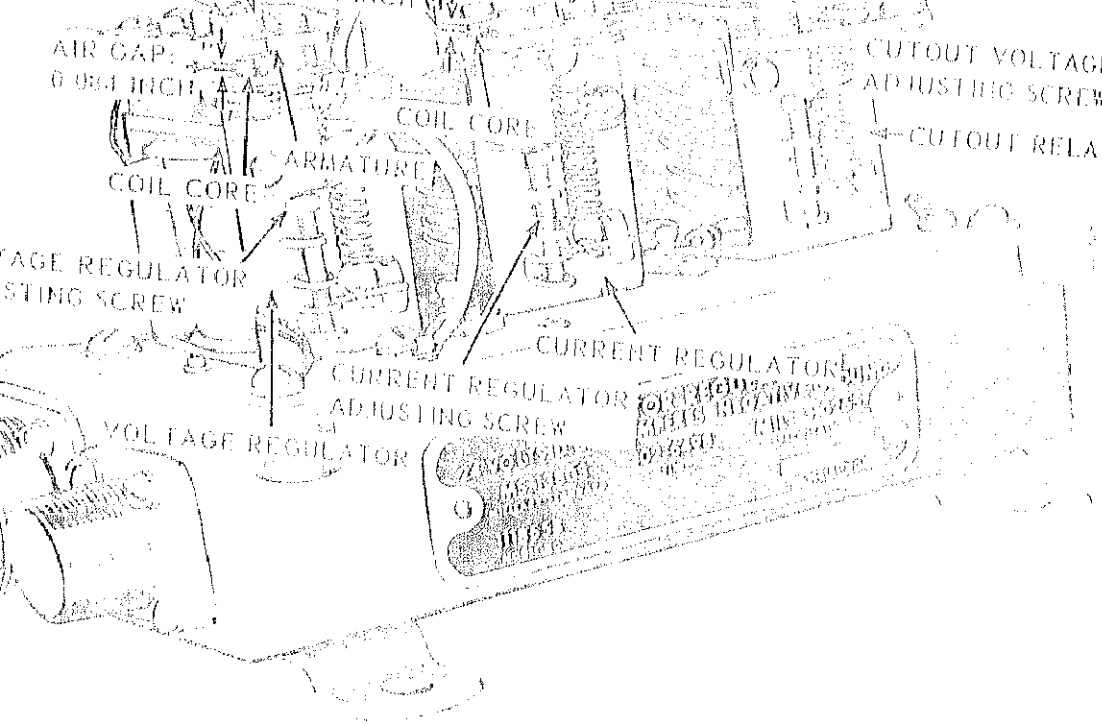


Figure 33—Continued.

and amperage output through several cycles of increasing and decreasing engine speed from idle-to-operating-to-idle speed to make sure adjustments are stable.

Remove adapters and connect cables.

Install regulator cover.

tor and Bracket

it Test.

ke a test connection as shown on gure 33.

rt engine and slowly build up rpm operating speed. Observe voltmeter. The minimum voltage

(3) If voltage is not built up to required value, generator is defective and must be replaced.

b. Removal. Remove the generator and mounting bracket from the engine as instructed on figure 34.

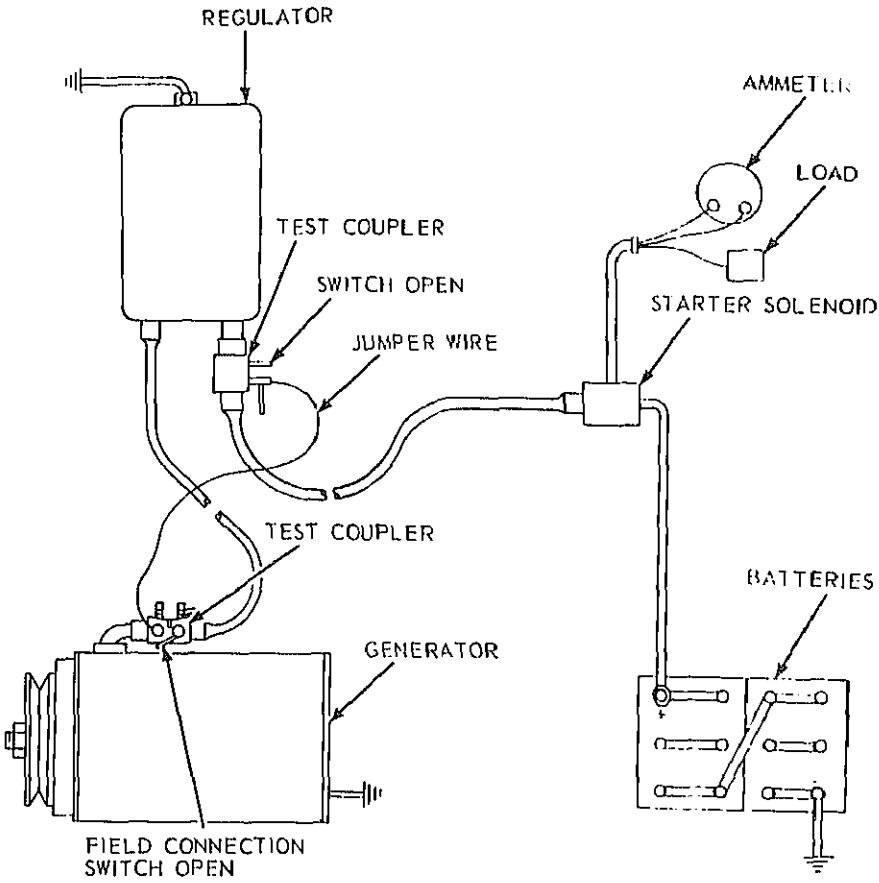
Note. If removing bracket, remove the generator regulator (par. 83).

c. Cleaning, Inspection, and Repair.

(1) Clean the generator with a cloth dampened with approved cleaning solvent.

(2) Inspect the generator for loose assembly hardware.

(3) Rotate



NOTE: MOMENTARILY CONNECT THE JUMPER WIRE AS ILLUSTRATED TO POLARIZE THE GENERATOR.

MSC 3820-205-20/2/33 ③

③

Figure 33.—Continued.

or the field pole shoes. Replace a defective generator.

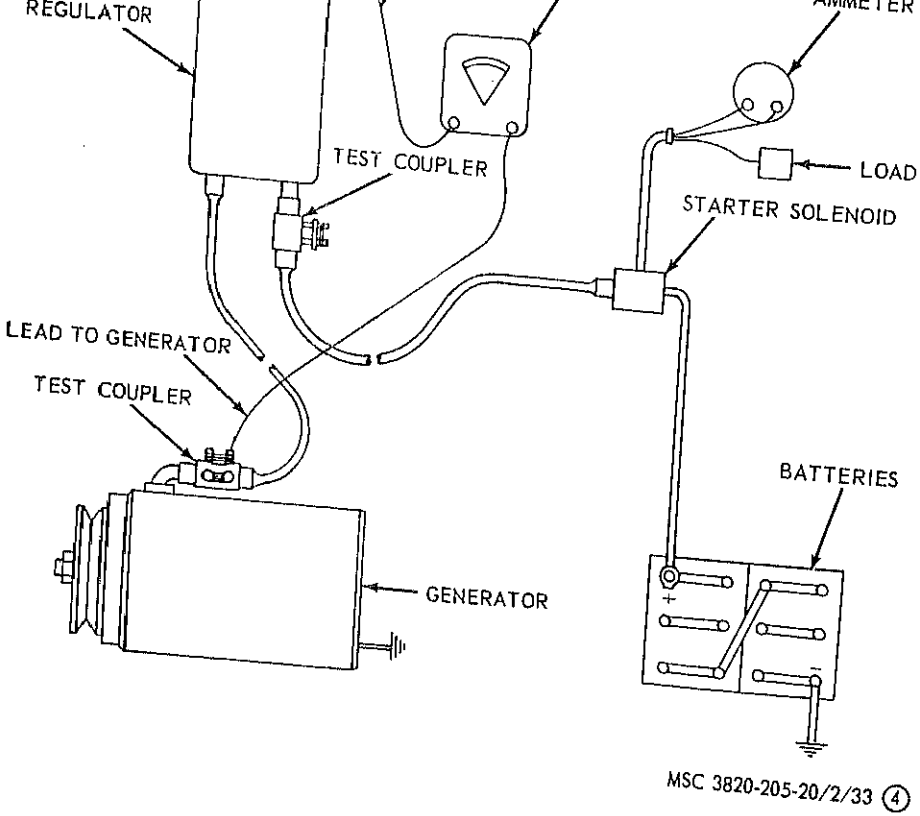
(4) Inspect and replace brushes as instructed in *d* below.

d. Brush Replacement.

(3) Install new brushes on the gene
in reverse of instructions on figu

e. Installation.

(1) Install the generator and mou
bracket on the engine in rever



④

Figure 37—Continued.

(2) If the starter operates, the solenoid is defective. Replace a defective solenoid.

b. Removal. Remove the starter solenoid from the starter as instructed on figure 36.

c. Cleaning, Inspection, and Repair. Clean and inspect. Replace a defective solenoid.

d. Installation. Install the starter solenoid on the starter in reverse of the instructions on figure 36.

6. Starter

a. On-equipment Test.

(1) Connect a heavy jumper lead across the large terminals on the starter solenoid.

(2) If the starter d...

c. Cleaning, Inspection, and Repair.

(1) Clean the starter with a cloth dampened with an approved cleaning solvent.

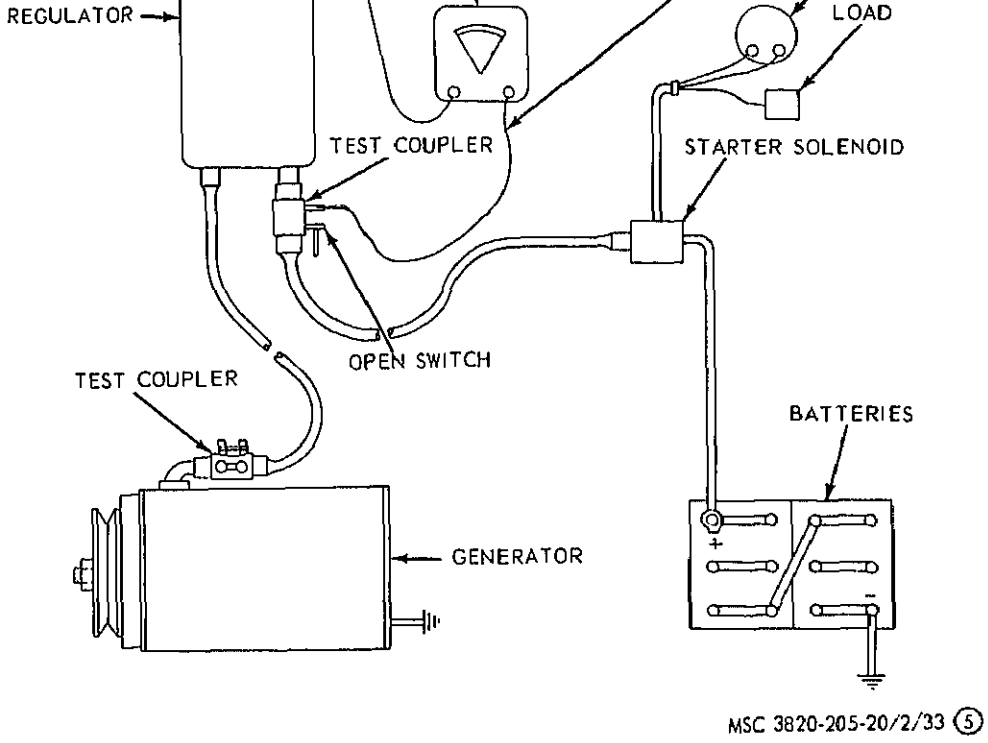
(2) Replace a damaged or defective starter as necessary.

d. Brush replacement.

(1) Remove the cover band from the starter as instructed on figure 36.

(2) Remove the brushes from the starter as instructed on figure 37.

(3) Inspect the brushes for worn, or chipped condition. Replace brushes if worn to less than one-half inch in length. Inspect ...



(6)

Figure 33—Continued.

(5) Install the cover band on the starter in reverse of the instructions on figure 36.

Installation. Install the starter on the ine in reverse of the instructions on figure

Oil Pressure Gage and Sending Unit

Removal.

(1) Remove the oil pressure gage as instructed on figure 38.

(2) Remove the oil pressure gage sending unit as instructed on figure 39.

Cleaning and Inspection. Clean and inct the oil pressure gage and sending unit for damage. Replace as necessary.

(2) Install the oil pressure gage in verse of instructions on figure 38.

88. Water Temperature Gage and Sending Unit

a. Removal.

(1) Remove the water temperature gag as instructed on figure 38.

(2) Remove the water temperature gag sending unit as instructed on figure 4(

b. Cleaning and Inspection. Clean and in spect the water temperature gage and sendin unit for damage. Replace as required.

c. Installation.

(1) Install the water temperature gag

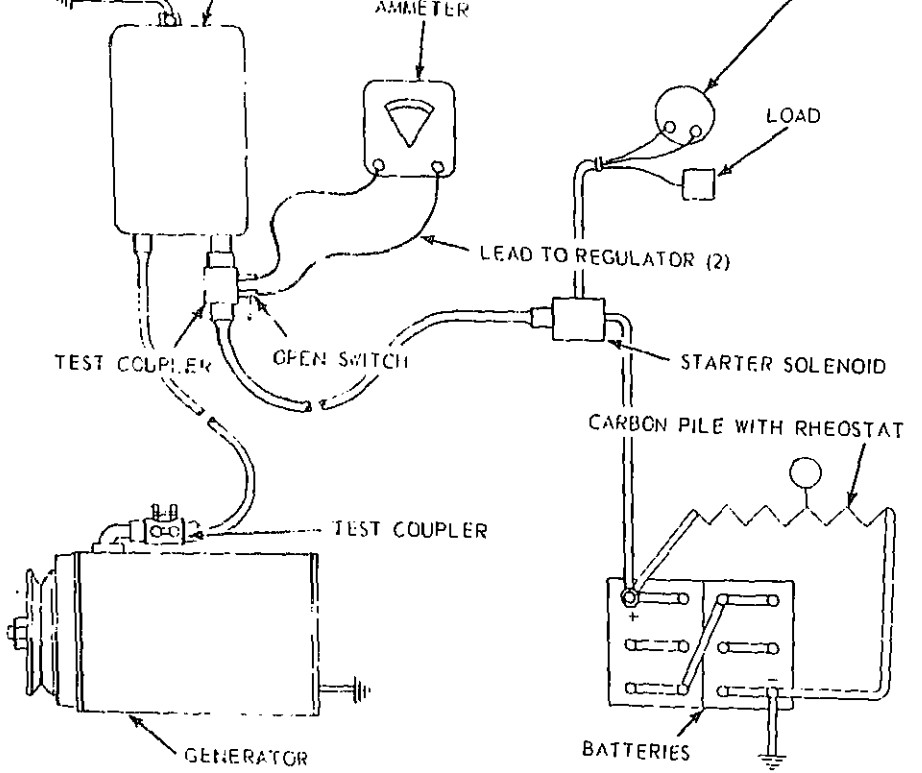


Figure 43—Continued.

89. Battery Generator Indicator

a. Removal. Remove the battery generator indicator as instructed on figure 38.

b. Cleaning and Inspection. Clean and inspect the battery indicator gage for damage. Replace as necessary.

c. Installation. Install the battery generator indicator in reverse of instructions on figure 38.

90. Overspeed Governor

a. Removal. Remove the overspeed governor as instructed on figure 41.

b. Cleaning and Inspection. Clean and in-

91. Safety Switch and Water Temp Sending Unit

a. Removal. Remove the water ten sending unit and safety switch as i on figure 42.

b. Cleaning and Inspection. Clear spect the safety switch and water ten sending unit for damage. Replace sary.

c. Installation. Install the water ture sending unit and safety switch i of instructions on figure 42.

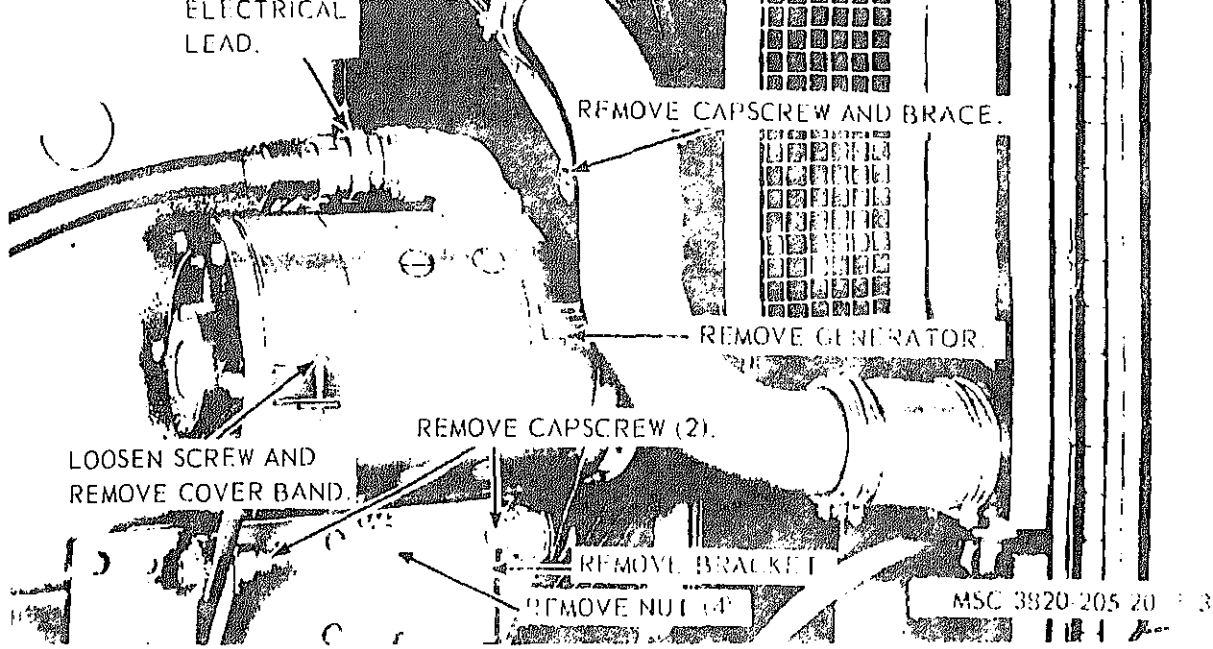
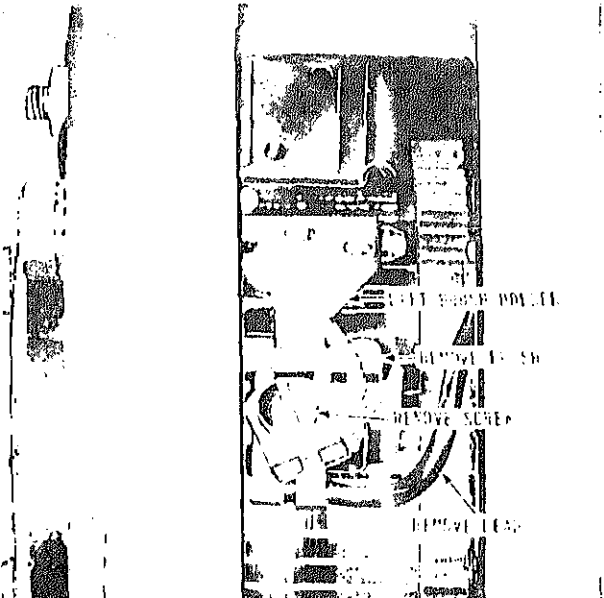


Figure 34. Generator and mounting bracket, removal and installation.



b. Cleaning and Inspection. Clean an
spect the starter switch for defects. Repla
required.

c. Installation. Install the starter swit
reverse of instructions on figure 38.

93. Engine Wiring and Warning Lights

a. Wiring.

(1) *Removal.* Remove the engine w
as instructed on figures 38 and
(2) *Cleaning, inspection, and r*
Clean and inspect the engine w
Repair or replace as necessary.
(3) *Installation.* Install the engine
ing in reverse of instructions o
ures 38 and 42.

b. Warning Lights.

(1) *Removal.* Remove the warning
assembly as instructed on C, figu

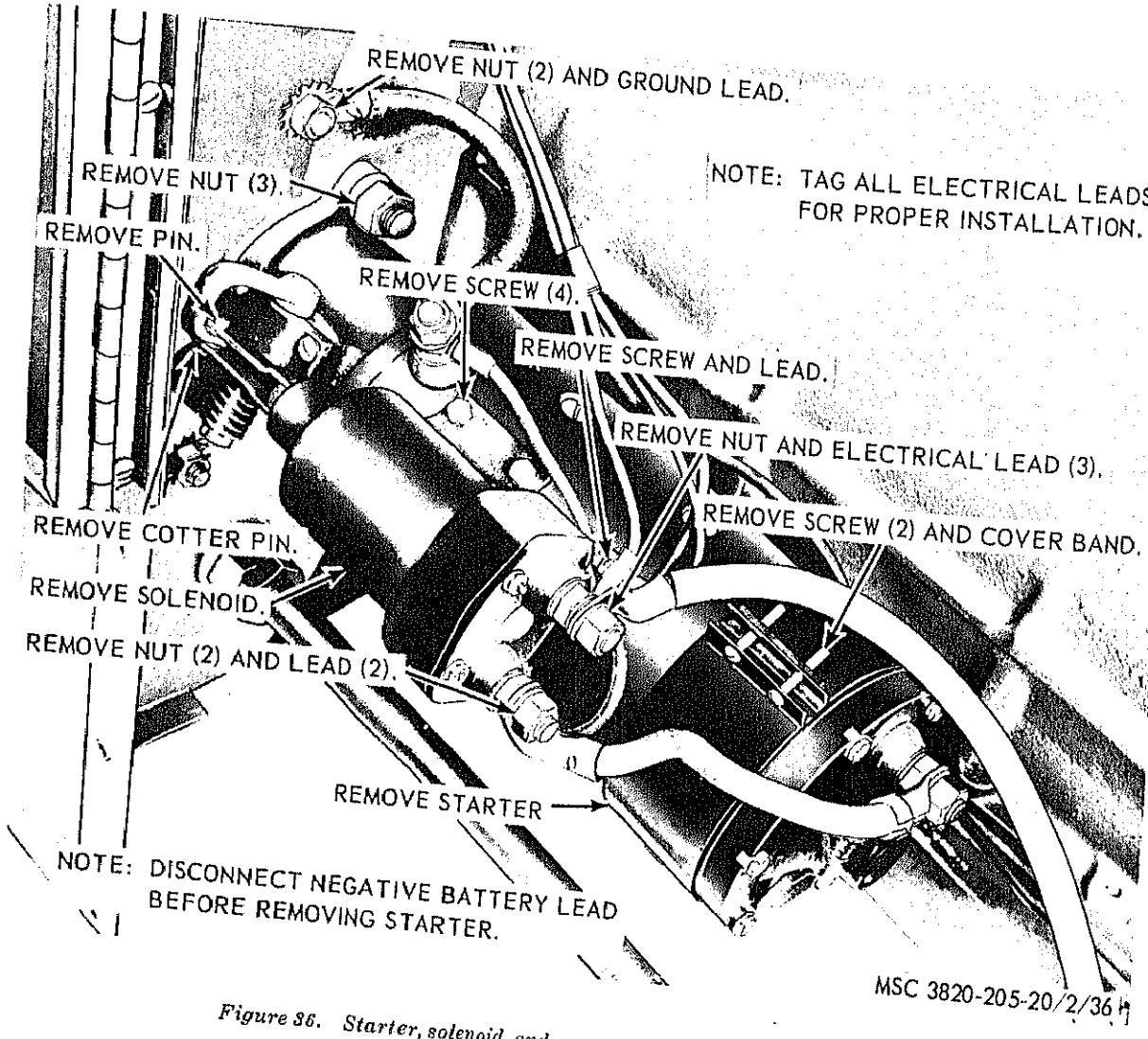


Figure 36. Starter, solenoid, and cover band, removal and installation.

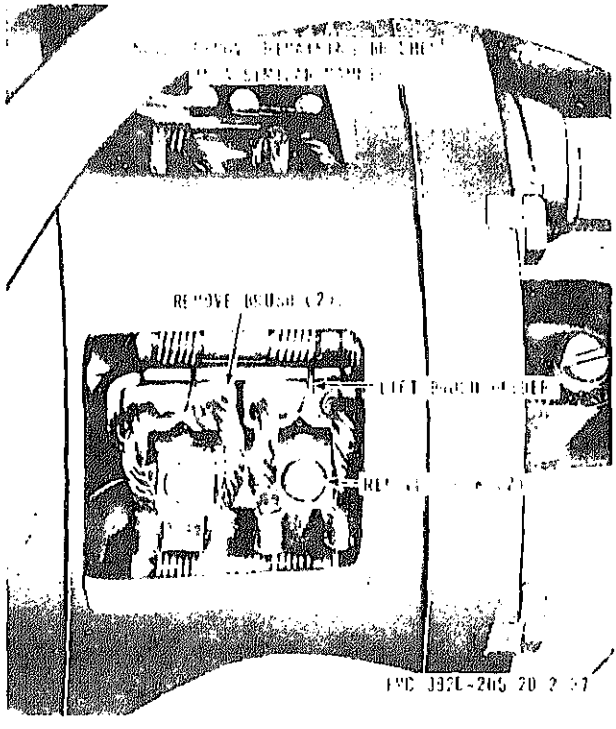


Figure 37. Starter brush replacement.

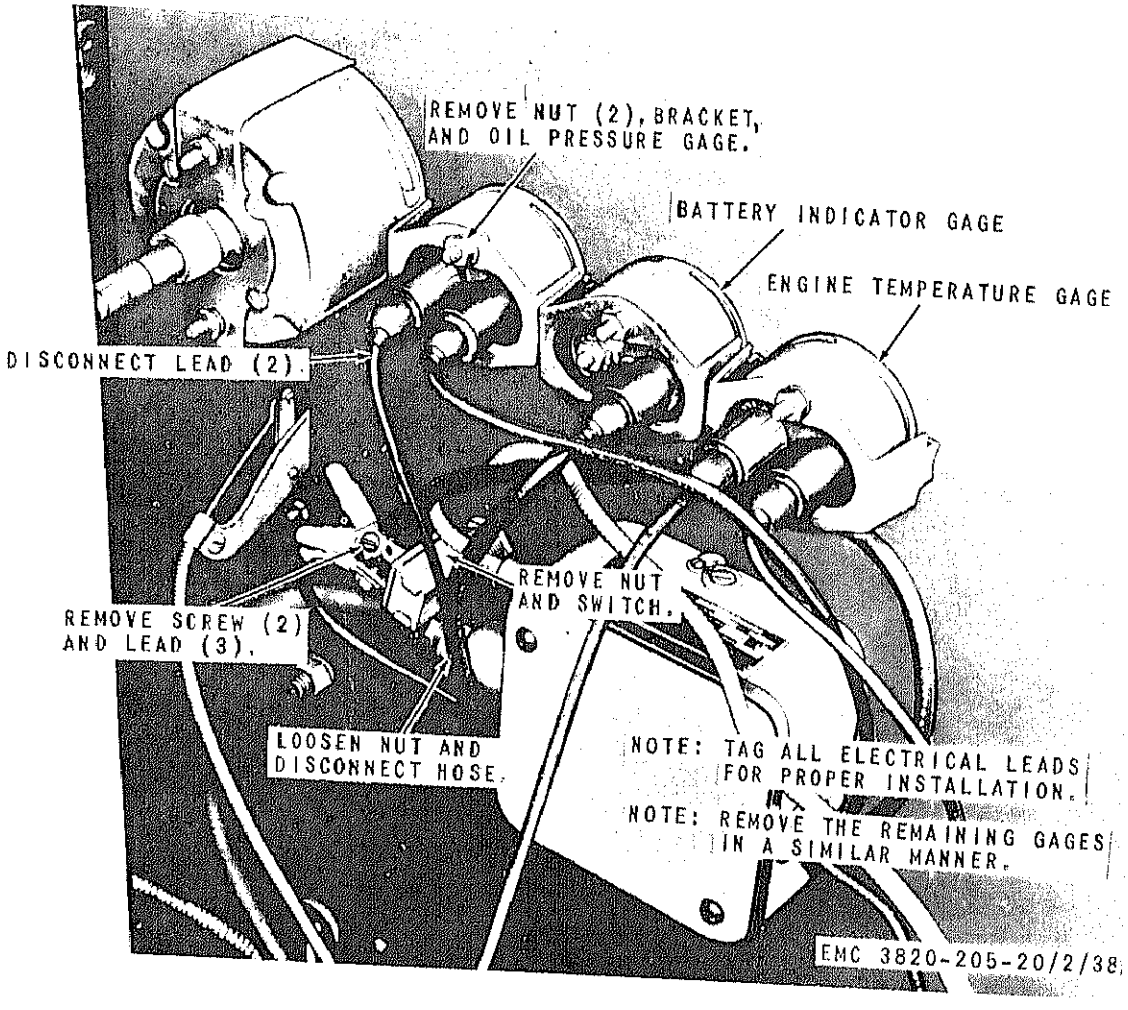


Figure 38. Gages and switch, removal and installation.

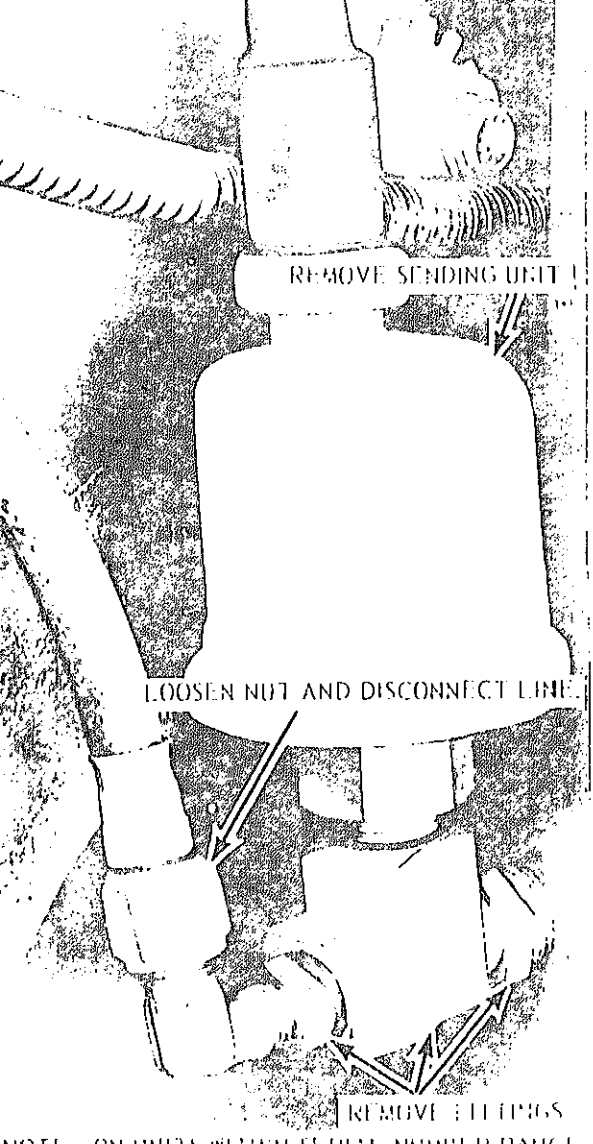


Figure 39. Oil pressure gage sending unit, removal and installation.

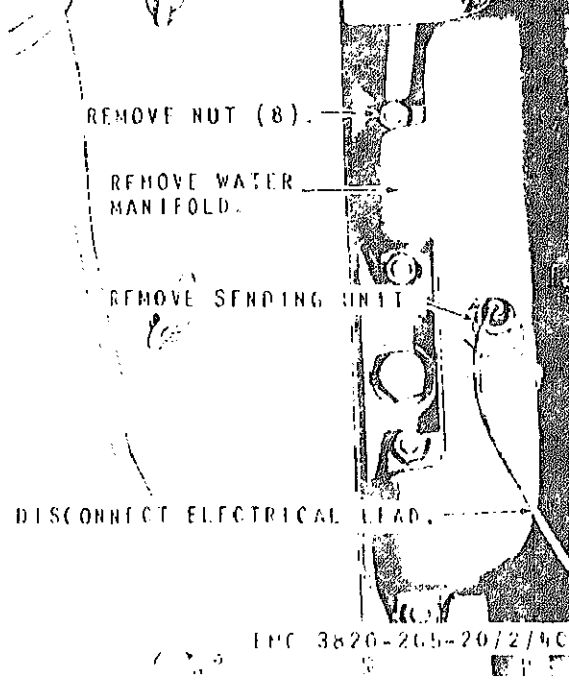


Figure 40. Water temperature gage sending unit manifold, removal and installation.

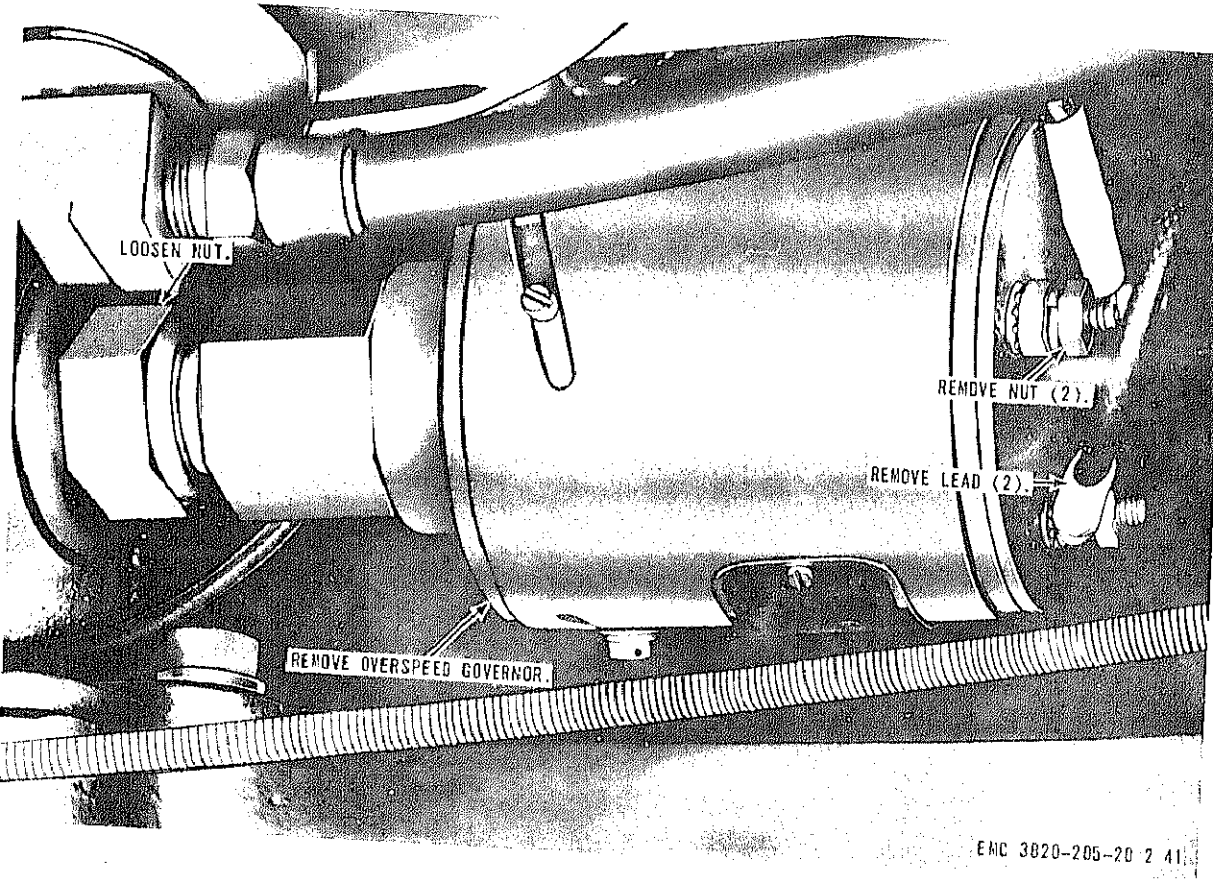
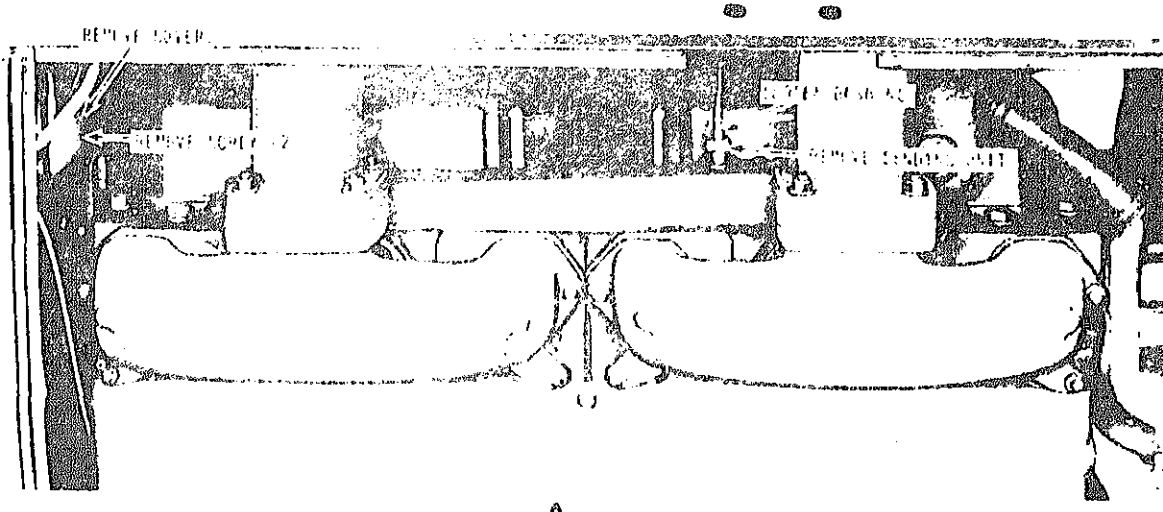
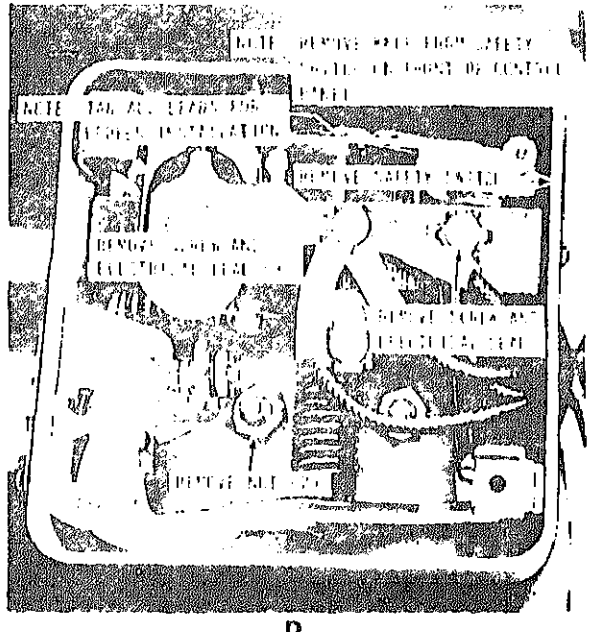


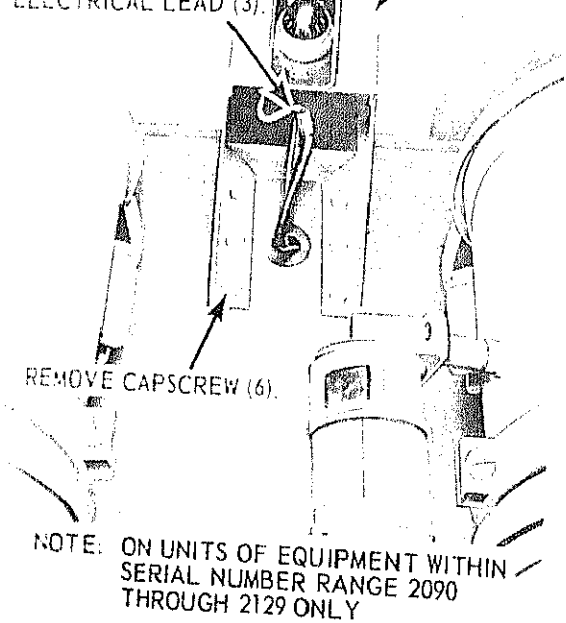
Figure 41. Overspeed governor, removal and installation.



A



B



...and high water temperature warning lights (on units of equipment within ...rial No. range 2090 through 2129 only)

Figure 42—Continued.

Section VI. ENGINE HOUSING

General

...housing is constructed of pre-... and includes the doors, door ...hoods, hood, radiator cowling, ...necessary attaching hardware ...housing.

Water Drain Lines

...Remove the drain lines as in-... 13.

b. Inspection. Clean and in-... and replace as necessary.

c. Installation. Install the drain lines in re-... on figure 13.

Doors

...Remove the doors as instructed on figure 44.

b. Cleaning, Inspection, and Repair. Clean and inspect the doors for any damage. Repair or replace if necessary.

c. Installation. Install the doors in reverse of instructions on figure 44.

97. Engine Door Supports and Side Panels

a. Removal.

(1) Remove the crankcase and water drain lines (par. 95).

(2) Remove the doors (par. 96).

(3) Remove the engine door supports and side panels as instructed on figure 45.

b. Cleaning, Inspection, and Repair. Clean and inspect the engine door supports and side panels for any damage. Repair or replace if necessary.

c. Installation. Install the engine door supports and side panels in reverse of instructions on figure 45.

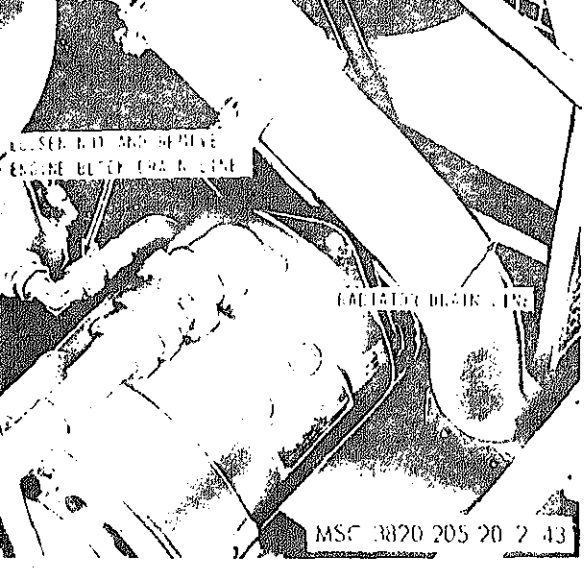


Figure 43. Drain lines, removal and installation.

c. Installation.

(1) Install the engine side panels and door supports in reverse of instructions on figure 45.

(2) Install the crankcase and water drain lines (par. 95).

(3) Install the engine doors (par. 96).

98. Hood, Radiator Cowling, and Rear Panel

a. Hood, and Radiator Cowling Removal.

(1) Remove the muffler (fig. 7).

(2) Remove the door supports and side panels (par. 97).

(3) Remove the hood and radiator cowling from the unit as instructed on figure 45.

(3) Remove the safety ignition swit (par. 91).

(4) Remove the tachometer-hourmet (par. 57).

(5) Remove the indicator gages a switches (pars. 87 through 89 a 92).

(6) Remove the battery charging rece tacle (par. 82).

(7) Remove the rear panel from the u as instructed on figure 45.

c. Cleaning, Inspection, and Repair. Cle and inspect. Replace or repair worn, damage or defective parts as necessary.

d. Hood, and Radiator Cowling Installati

(1) Install the hood and radiator cowli on the unit in reverse of the instru tions on figure 45.

(2) Install the door supports and si panels (par. 97).

(3) Install the muffler (fig. 7).

e. Rear Panel Installation.

(1) Install the rear panel on the unit reverse of the instructions on figu 45.

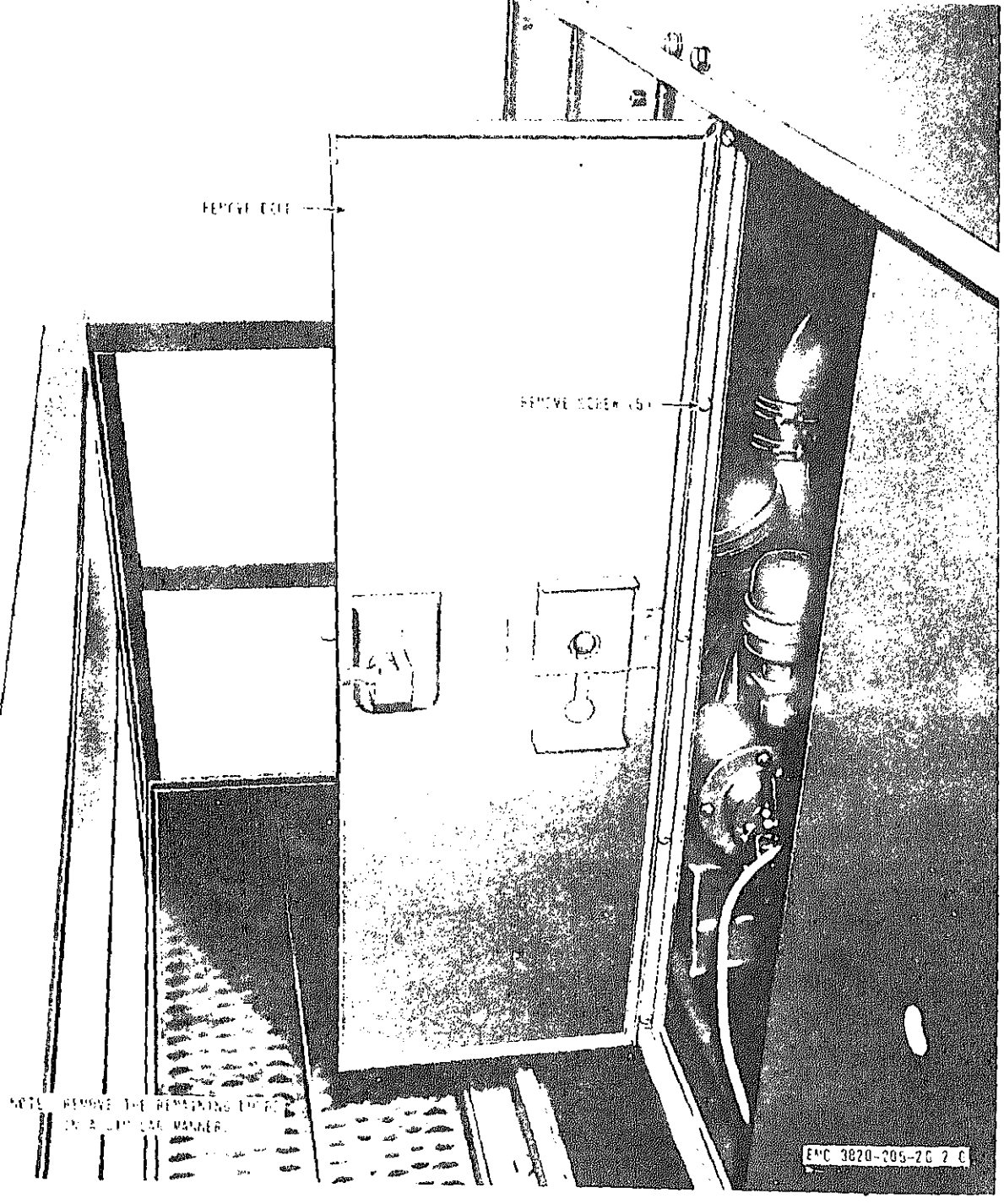
(2) Install the indicator gages (pars. through 89 and 92).

(3) Install the tachometer-hourme (par. 57).

(4) Install the safety ignition swi (par. 91).

(5) Install the ether starting aids (p 66).

(6) Install the air cleaner (par. 63).


REMOVE DOOR
REMOVE SCREW (S)
EMC 3020-205-20 2 0

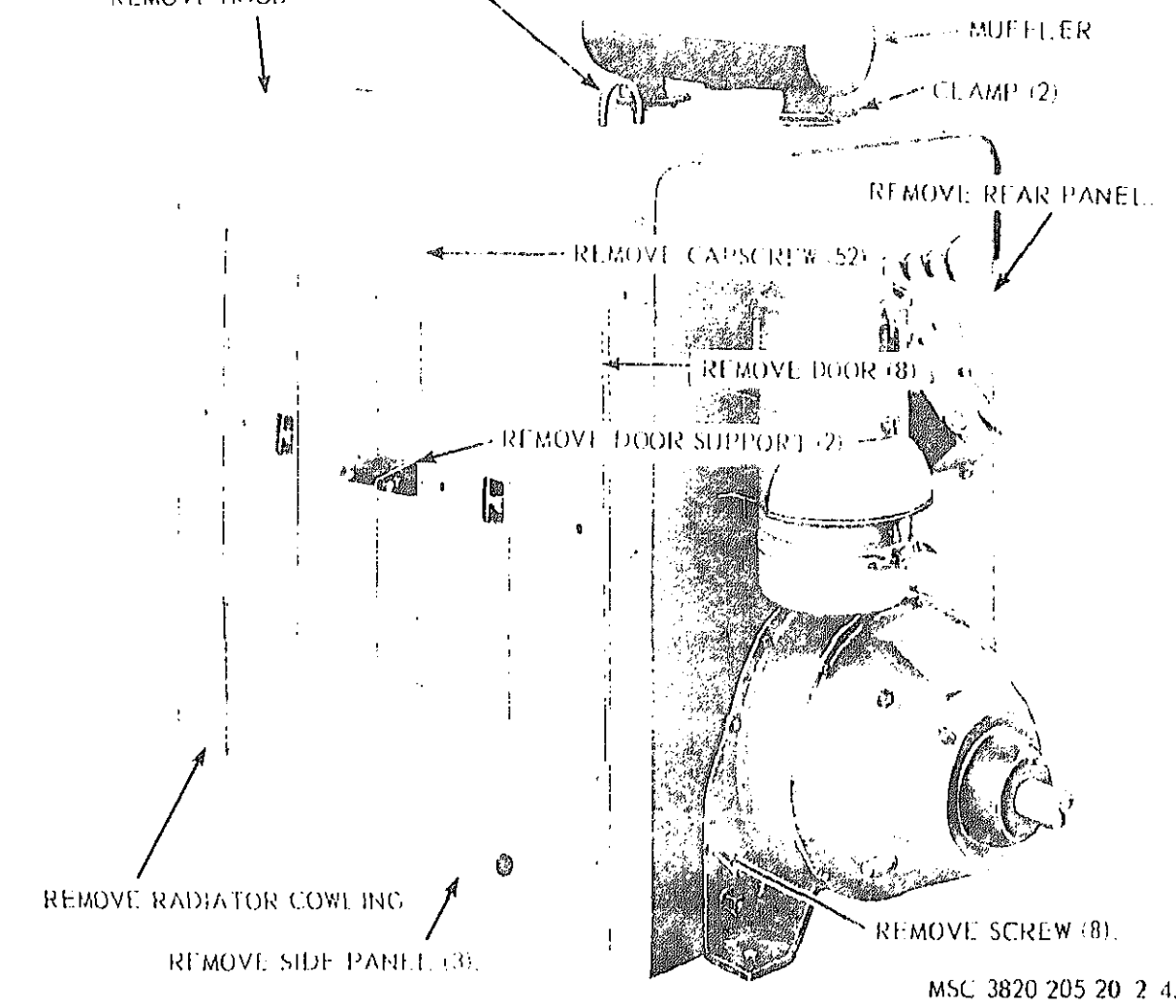


Figure 45. Engine housing, removal and installation.

Section VII. VALVE COVER AND ROCKER ARM ASSEMBLY

99. General

The engine intake and exhaust valves are located in the cylinder heads. There are three intake and three exhaust valves, rocker arms, and rocker arm adjusting screws located under each valve cover. The valve covers and breather

(1) Remove the engine hood (par. 98).
(2) Remove the two valve covers a breather as instructed on figure 46

b. Cleaning and Inspection. Clean and spect all parts. Replace gaskets and damag parts.

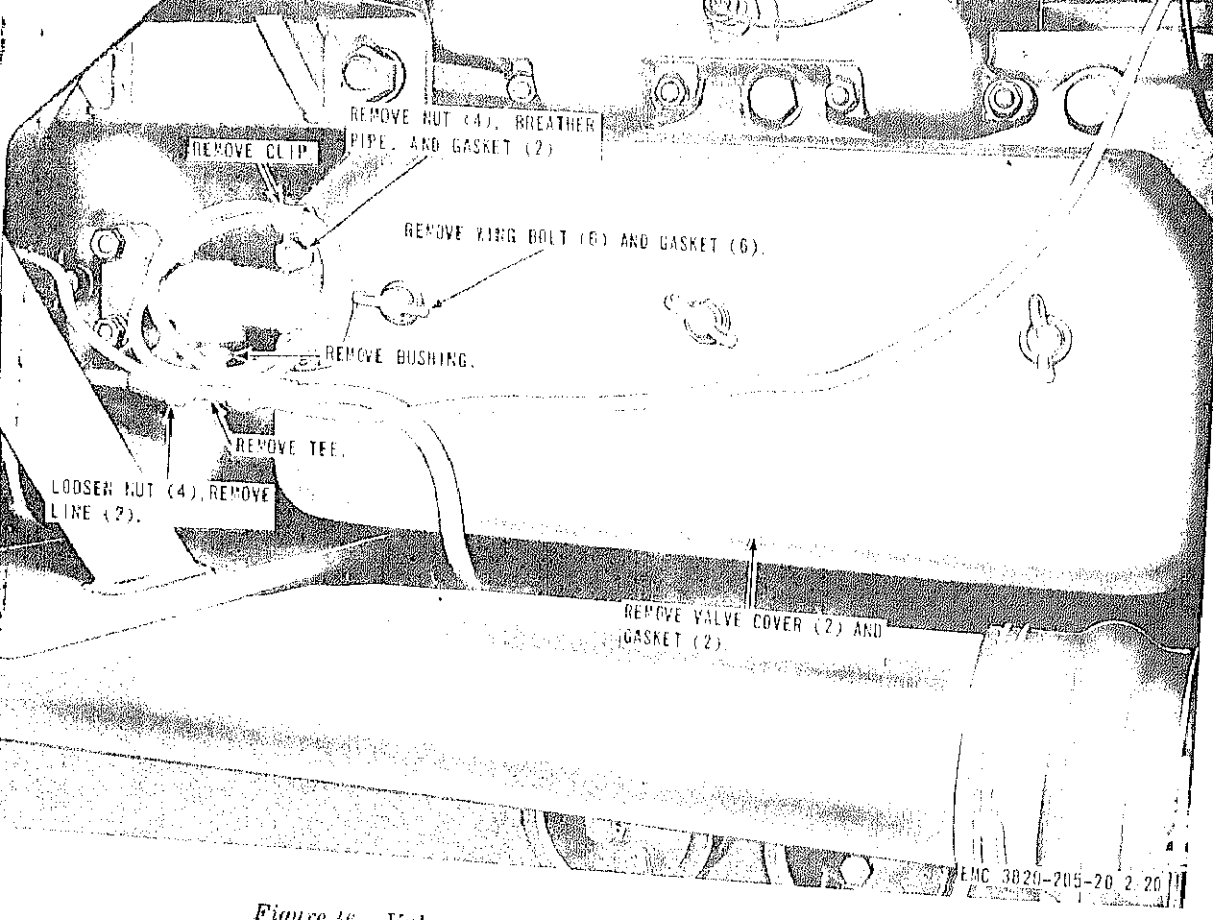


Figure 46. Valve covers and breather, removal and installation.

1. Rocker Arm Adjustment

a. Removal. Remove the valve covers and breather (par. 100).

b. Adjustment. Adjust each of the six intake and six exhaust valve rocker arms as instructed on figure 47.

c. Installation. Install the valve covers and breather (par. 100).

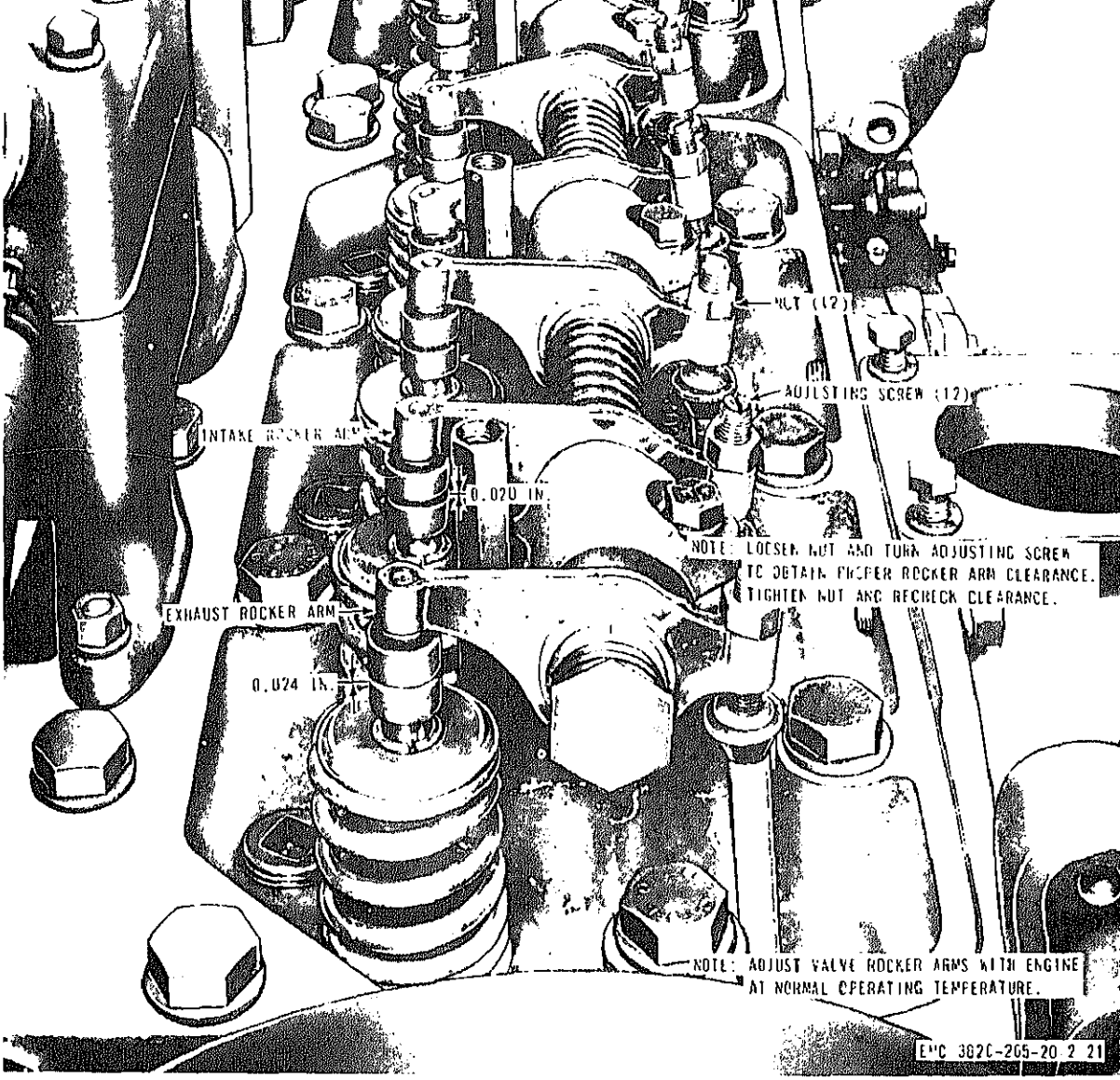


Figure 47. Rocker arm adjustment.

Section VIII. ENGINE COOLING SYSTEM

02. General

The engine cooling system consists of a fan

temperature is controlled by the thermostat keep the engine at operating temperature. T

REMOVE FAN SCREW (2).
To REMOVE FAN BELTS, LOOSEN ADJUSTING
STRAP SCREW, GENERATOR MOUNTING NUT (2),
PUSH GENERATOR IN TOWARD ENGINE AND
SLIP BELTS OFF GENERATOR AND FAN PULLEYS

b. Cleaning and Inspection. Clean and inspect the fan belt for fraying or any other damage. Replace as necessary.

c. Installation.

(1) Install the fan belts in reverse of instructions on figure 48.

(2) Install the fan guard (par. 103).

d. Adjustment. Adjust the fan belt (TM 5-3820-205-10/2).

105. Fan and Water Pump

a. Removal.

(1) Drain the cooling system (TM 5-3820-205-10/2).

(2) Remove the fan belts (par. 104).

(3) Remove the fan and water pump as instructed on figure 49.

b. Cleaning and Inspection. Clean and inspect the fan and water pump for damage. Replace as necessary.

c. Installation.

(1) Install the fan and water pump in reverse of instructions on figure 49.

(2) Install the fan belts (par. 104).

(3) Fill the cooling system (TM 5-3820-205-10/2).

106. Radiator Shroud

a. Removal.

(1) Drain the cooling system (TM 5-3820-205-10/2).

(2) Remove the engine hood (par. 98).

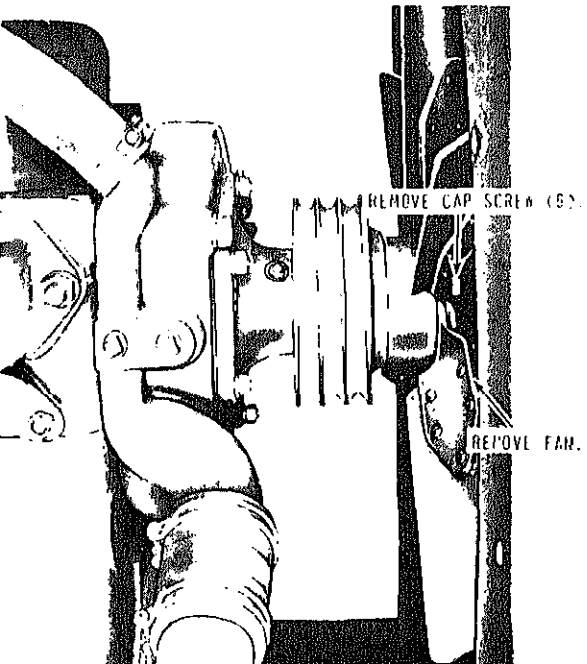
(3) Remove the fan (par. 105).

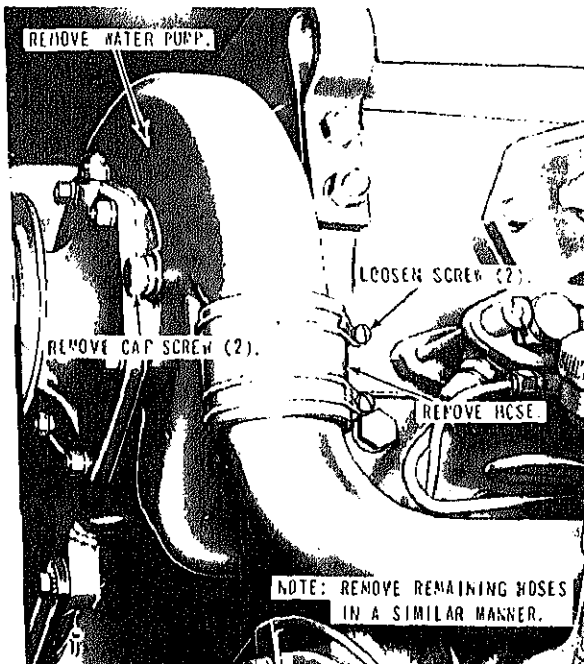
(4) Remove the radiator shroud as instructed on figure 50.

b. Cleaning and Inspection. Clean and inspect the radiator shroud. Replace as necessary.

c. Installation.

(1) Install the radiator shroud in reverse of instructions on figure 50.





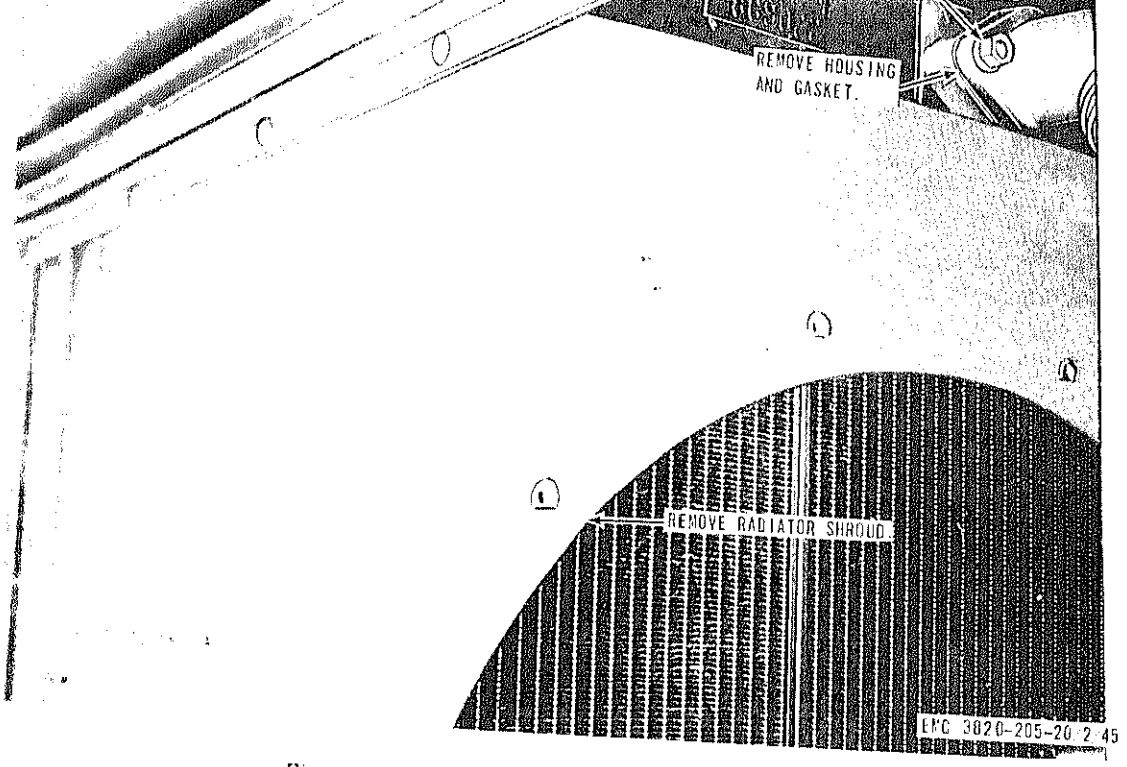


Figure 50. Radiator shroud, removal and installation.

(3) Install the fan (par. 105).

(4) Install the engine hood (par. 98).

(5) Fill the cooling system (TM 5-3820-205-10/2).

107. Thermostat and Housing

a. Removal.

(1) Drain the cooling system (TM 5-3820-205-10/2).

(2) Remove the thermostat and housing as instructed on figure 51.

b. Cleaning and Inspection. Clean and inspect the thermostats and housing. Replace if necessary.

c. Installation.

(1) Place the thermostat and suitable gasket in pail of water and heat. The thermostat should start to open at 180°-185° F. and be fully open at 180°-185° F.

(2) Install the thermostat and housing as instructed on figure 51.

(3) Install the fan (par. 105).

(4) Install the engine hood (par. 98).

(5) Fill the cooling system (TM 5-3820-205-10/2).

108. Water Manifold

a. Removal.

(1) Drain the cooling system (TM 5-3820-205-10/2).

(2) Remove the thermostats and housing (par. 107).

(3) Remove the water manifold as instructed on figure 40.

b. Cleaning and Inspection. Clean and inspect the water manifold for any damage. Replace if necessary.

c. Installation.

(1) Install the water manifold in reverse of instructions on figure 40.

(2) Fill the cooling system (TM 5-3820-205-10/2).

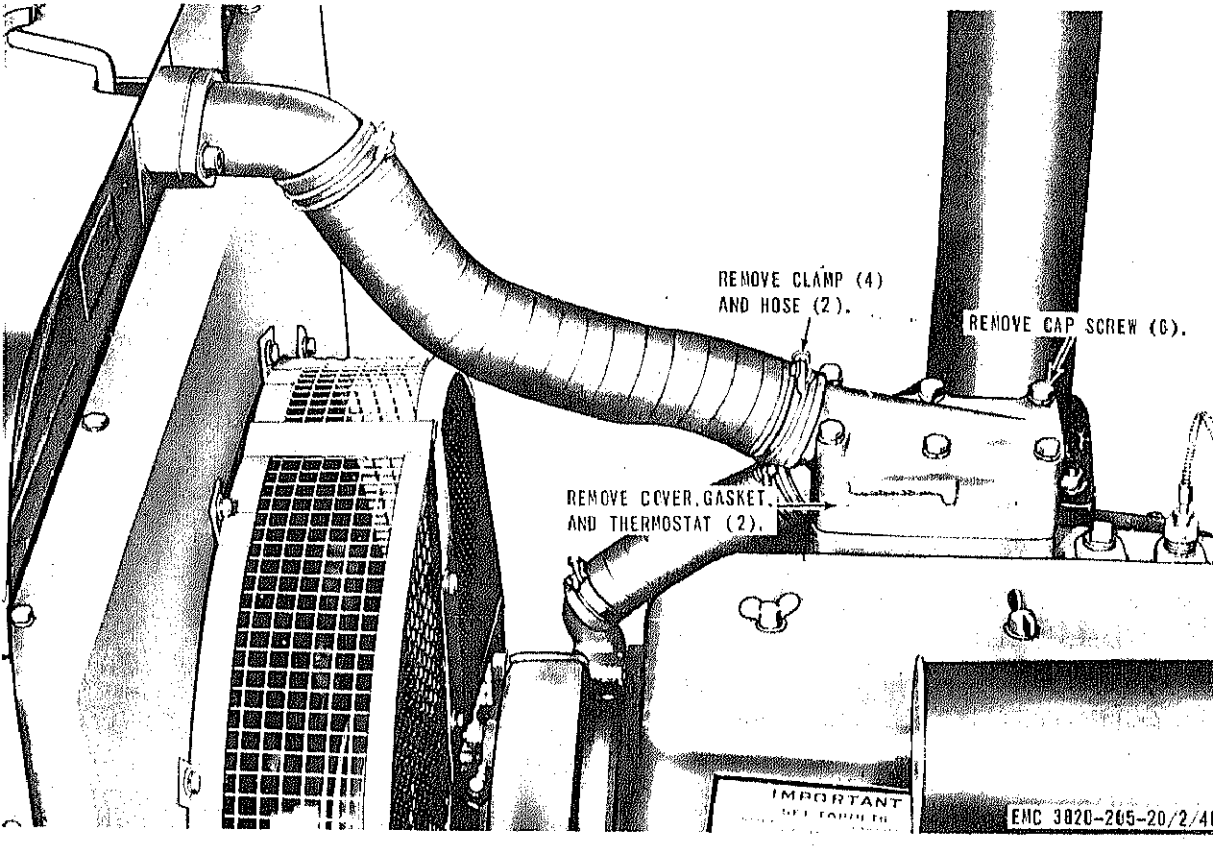
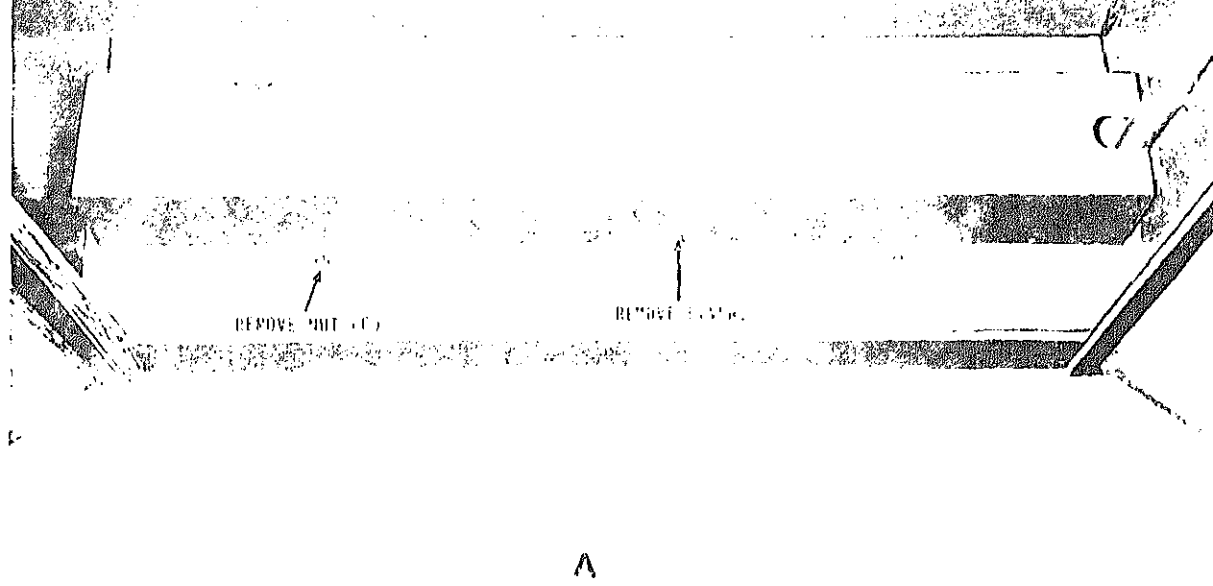
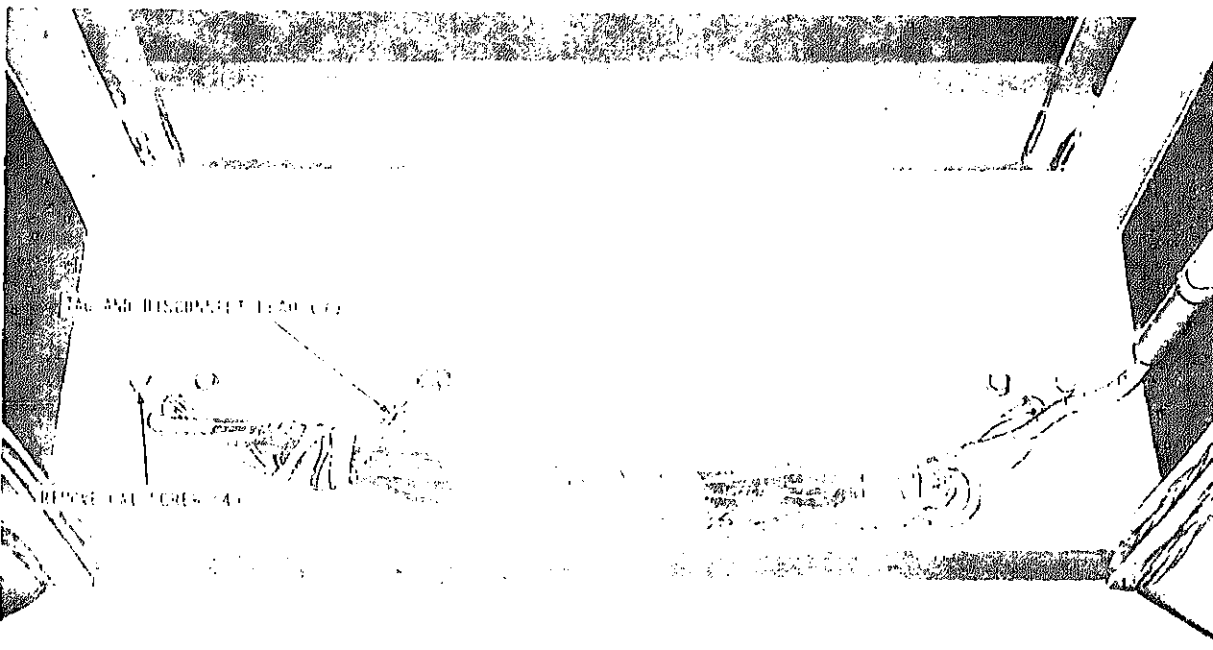


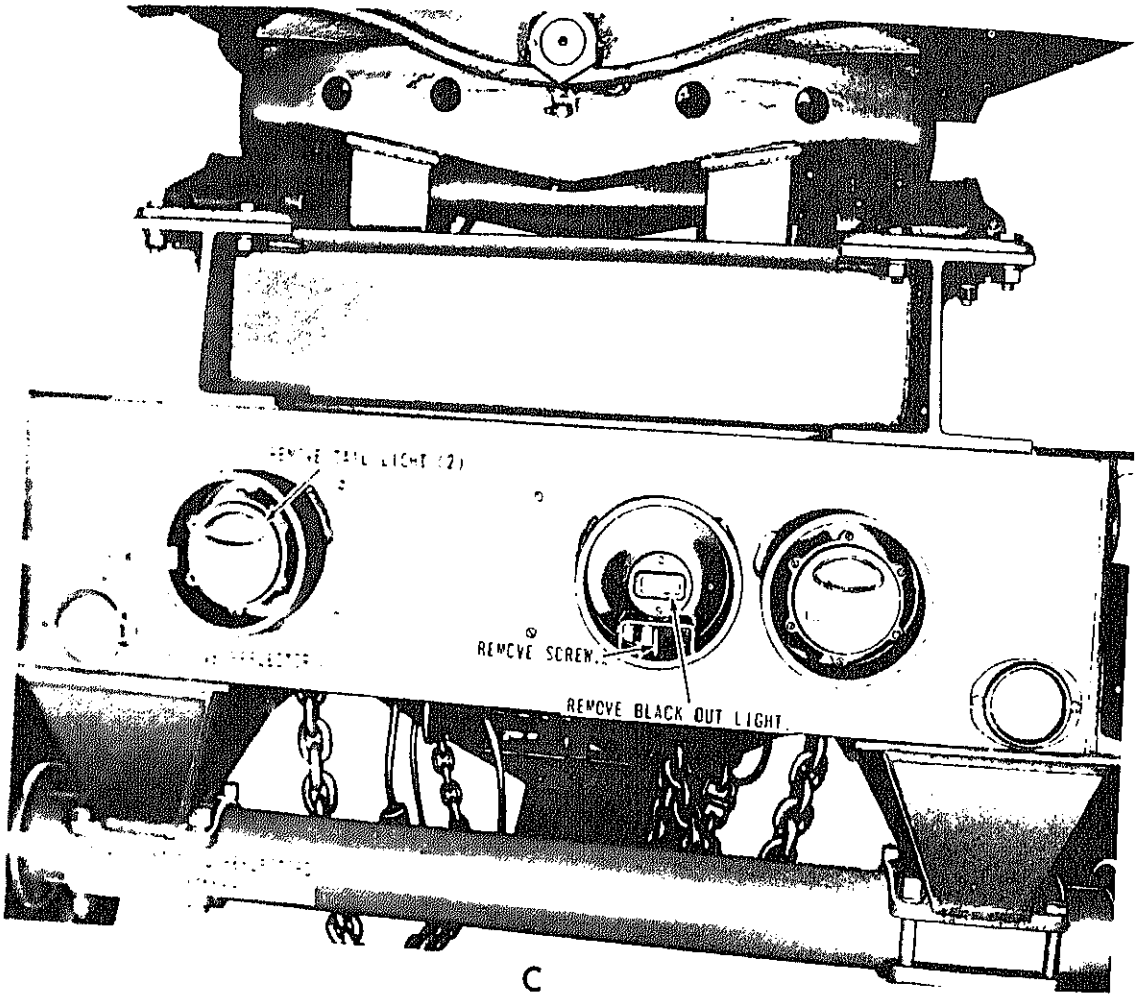
Figure 51. Thermostat and housing, installed view.



A



B



Tail Lights installed

Figure 53—Continued.

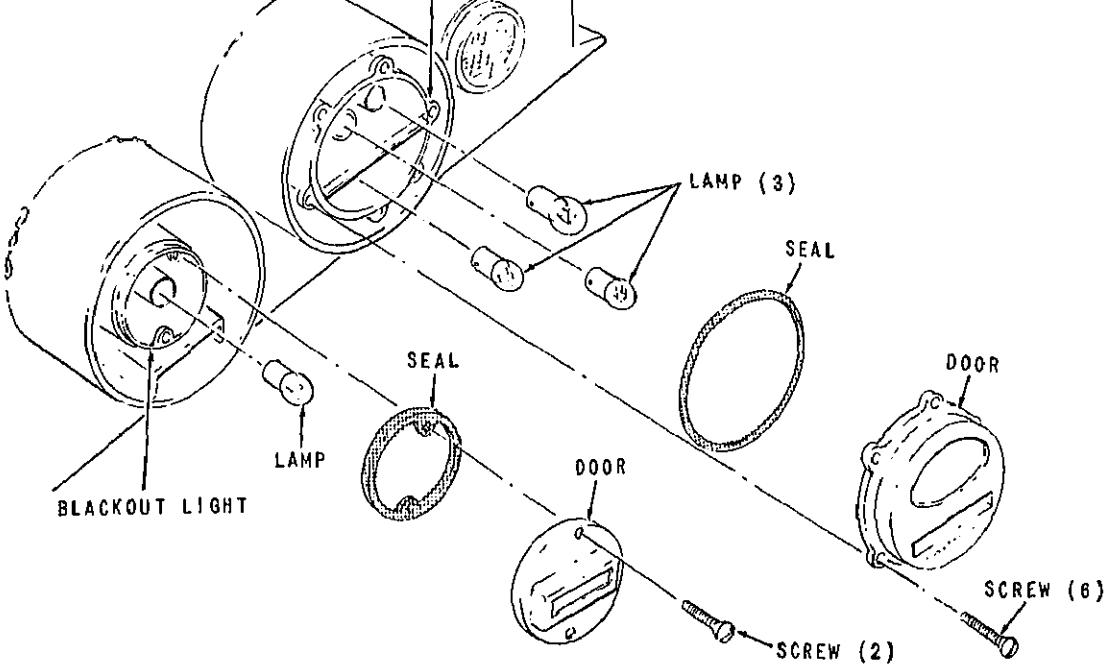


Figure 54. Tail and blackout lights, exploded view.

Section II. DOLLY ASSEMBLY

112. General

The dolly assembly consists of a drawbar, lunette, fifth wheel, wheels, and wheel bearing assemblies. The dolly is used to carry the front end of the trailer frame when the unit is being pulled as a full trailer. The fifth wheel includes a jaw-latch mechanism for connecting or disconnecting the dolly assembly from the trailer.

113. Dolly Assembly

a. Removal.

(1) Crib the jaw crusher (TM 5-3820-205-10/2).

(2) Remove the dolly assembly as illus-

c. Installation.

(1) Install the dolly assembly
of instructions on figure 55

(2) Remove the cribbing (TM
205-10/2).

114. Fifth Wheel

a. Removal.

(1) Remove the dolly assembly (

(2) Remove the fifth wheel as
on figure 55.

b. Disassembly. Disassemble the
as illustrated on figure 56.

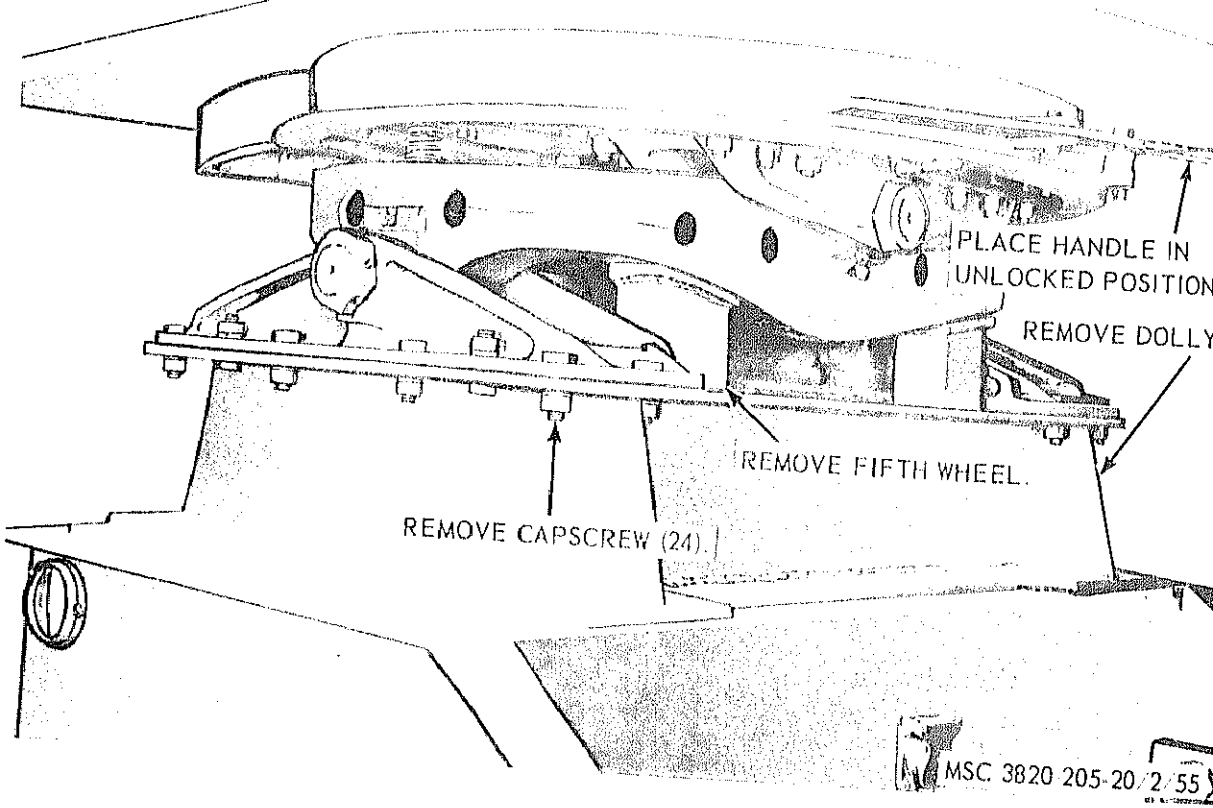


Figure 55. Fifth wheel and dolly assembly, removal and installation.

e. Installation.

(1) Install the fifth wheel in reverse of instructions on figure 55.

(2) Install the dolly assembly (par. 113).

15. Dolly Wheels and Tires

a. Removal.

(1) Use a suitable lifting device and place dolly axle on blocks.

(2) Remove the dolly wheels and tires as instructed on figure 57.

b. Cleaning, Inspection, and Repair.

(1) Clean studs and nuts with an approved cleaning solvent and dry thoroughly.

(2) Clean hub, wheel faces, and nut cavities of dirt, grease, and rust. Repair tires and tubes as instructed in TM 9-1870-1.

c. Installation.

(1) Install inner wheel on hub.

Note. Number the studs 1 to 6.

(2) Install inner capnuts on studs 1 and 4 and torque to 150 to 200 foot-pounds.

(3) Install the remaining capnuts and torque Nos. 2, 5, 3, and 6 to 500 to 600 foot-pounds in that order. Retorque Nos. 1 and 4 to 500 to 600 foot-pounds.

(4) Install the outer wheel assembly making sure that the outer wheel valve stem is opposite the inner valve stem.

(5) Install two outer nuts on opposite

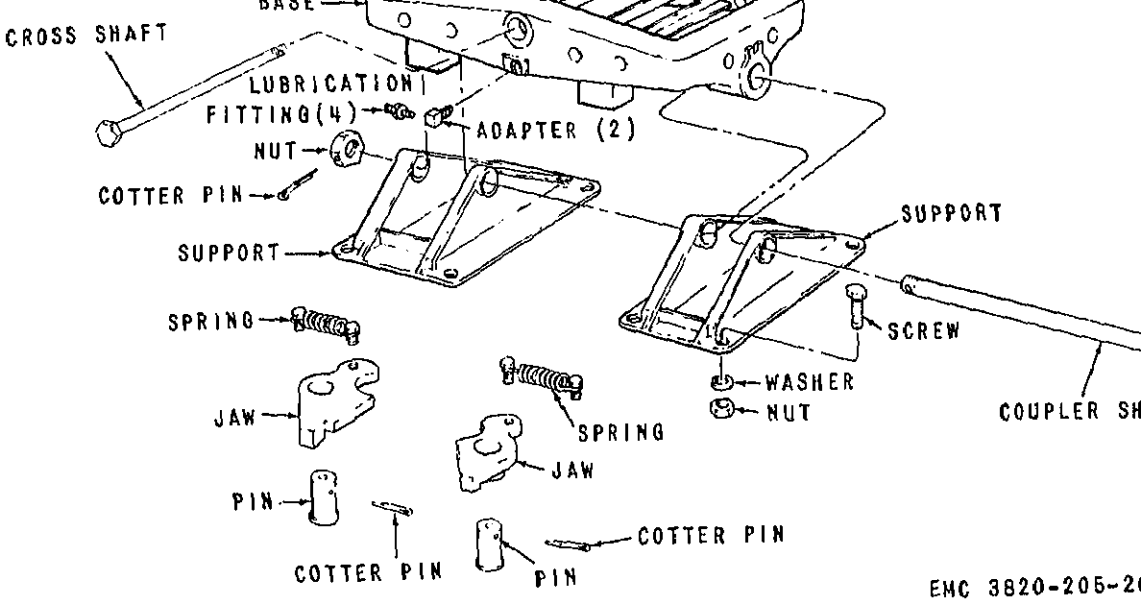
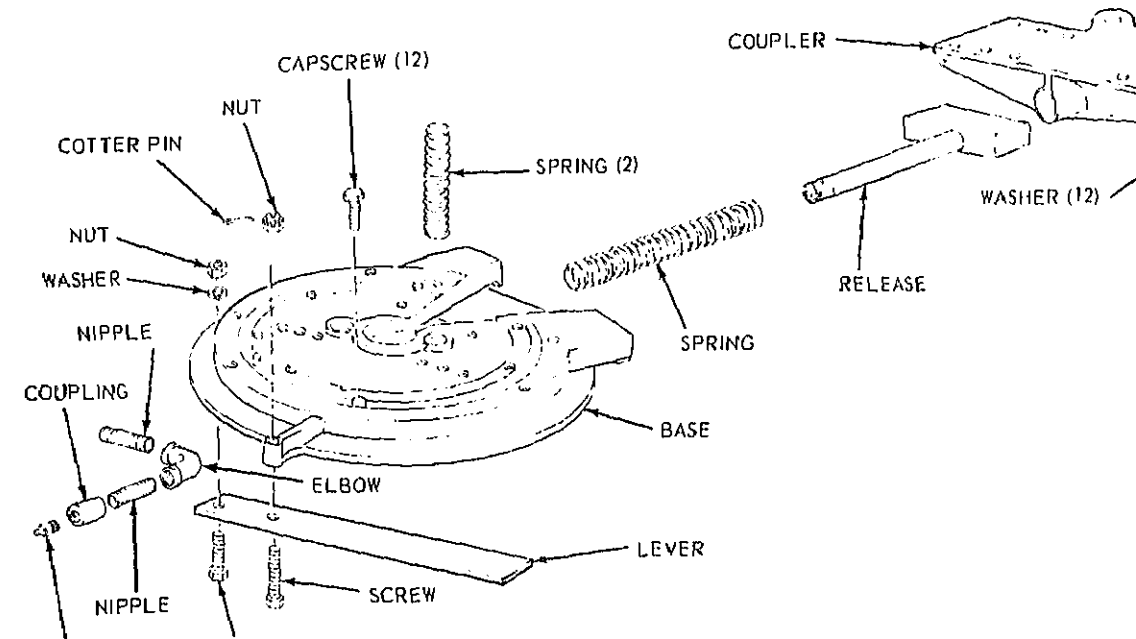


Figure 56. Fifth wheel, exploded view.



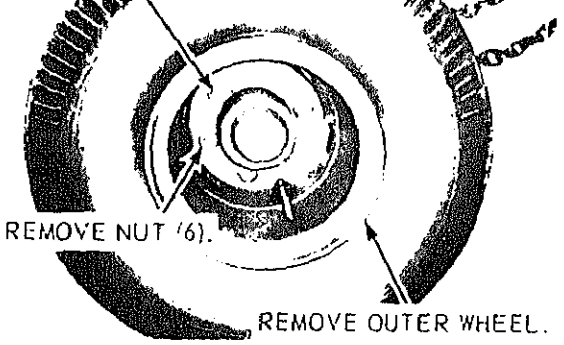


Figure 57. Dolly wheel, removal and installation.

and torque to 500 to 600 foot-pounds in the sequence outlined above.

(7) Remove the two outer nuts (5) above and reinstall with washers and torque to 500 to 600 foot-pounds.

(8) Remove the dolly from the blocks using a suitable lifting device and road test approximately 10 miles. After first mile, fifth mile, and tenth mile retorque inner and then outer nuts to 500 to 600 foot-pounds. If at the tenth mile torque value has dropped below 400 foot-pounds, remove wheels, investigate, and repeat entire procedure.

Caution: **A trestle (Motor Vehicle Maintenance, 5-ton) will be used in final torquing operations, taking care that drive extensions are parallel to the ground at all times.**

6. Wheel Bearing and Hub Assemblies

a. Removal and Disassembly.

(1) Remove the dolly wheels (par. 115).

(2) Remove and disassemble the wheel bearings and hub assembly as illustrated on figure 58.

Note. Install hubs with right-hand stubs on right side of the vehicle and hubs with left-hand studs on left side of the vehicle.

(2) Install the wheel bearing adjusting nut. Screw the nut against the bearing as the wheel is resolved. Be sure there is sufficient clearance between the brakeshoe and drum so brakeshoe drag will not interfere with the bearing adjustment.

(3) Tighten the adjusting nut to 50-foot-pounds torque while the wheel is being rotated. Rotate the wheel in both directions to correctly position the bearings.

(4) Back off adjusting nut ¼ to ½ turn, and install the adjusting nut lockwasher. If the holes in lockwasher do not fit dowel protruding from adjusting nut, the washer may be removed and turned over, which changes hole locations.

(5) Install the outer locknut and torque to 250 to 400 foot-pounds.

Note. The use of an impact wrench is discouraged; however, if used, the final torquing will be accomplished by hand using a smooth downward effort.

117. Air Hoses and Fittings

a. Removal. Remove the air hoses as illustrated on figure 59.

Note. On units of equipment within serial No. range 2090 through 2129 the hoses and cable are suspended by the Flexo-Stick assembly.

b. Cleaning and Inspection. Clean and inspect all air hoses and fittings for damage or deterioration. Replace as required.

c. Installation. Install the air hoses and fittings in reverse of instructions on figure 59.

118. Drawbar

a. Removal.

(1) Remove Flexo-Stick assembly from

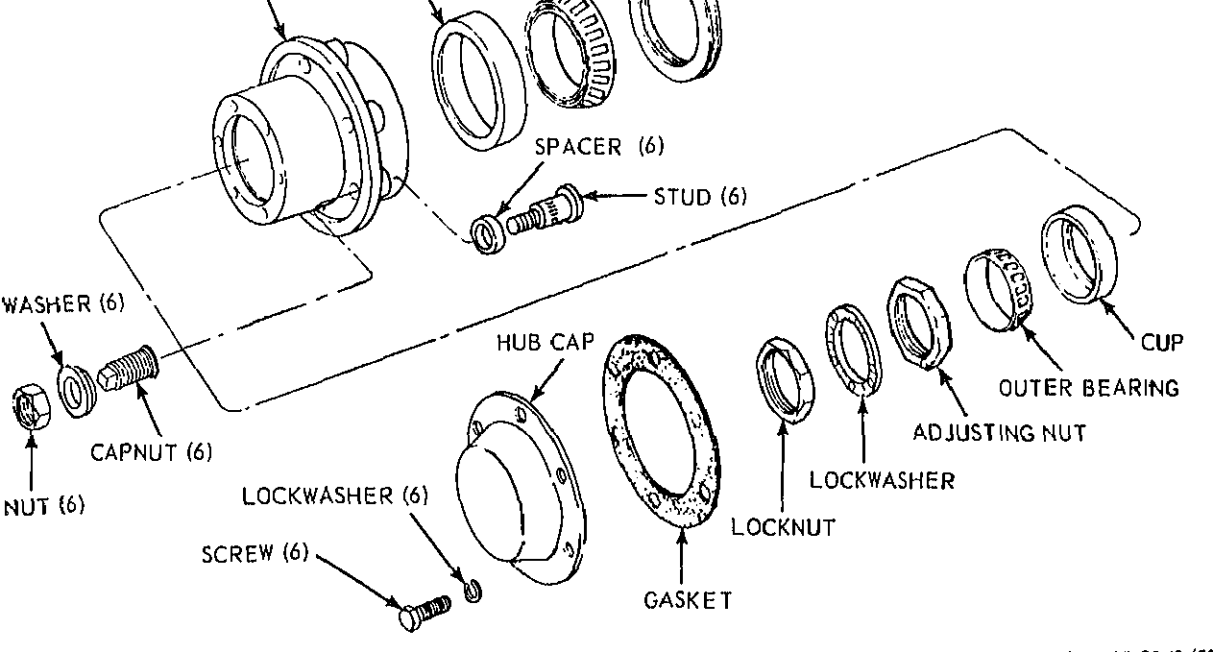


Figure 58. Wheel bearing and hub assembly, exploded view.

b. Cleaning and Inspection. Clean and inspect the drawbar for damage. Replace if necessary.

c. Installation.

(1) Install the drawbar in reverse of instructions on figure 59.

(2) Install Flexo-Stick assembly on the drawbar (TM 5-3820-205-10/2).

119. Lunette

a. Removal. Remove the lunette as instructed on figure 59.

b. Cleaning and Inspection. Clean and inspect the lunette for wear. Replace if necessary.

c. Installation. Install the lunette in reverse

120. Reflectors

a. Removal. Remove reflectors as instru on figure 53.

b. Cleaning and Inspection. Clean and spect reflectors for damage. Replace dama reflectors as necessary.

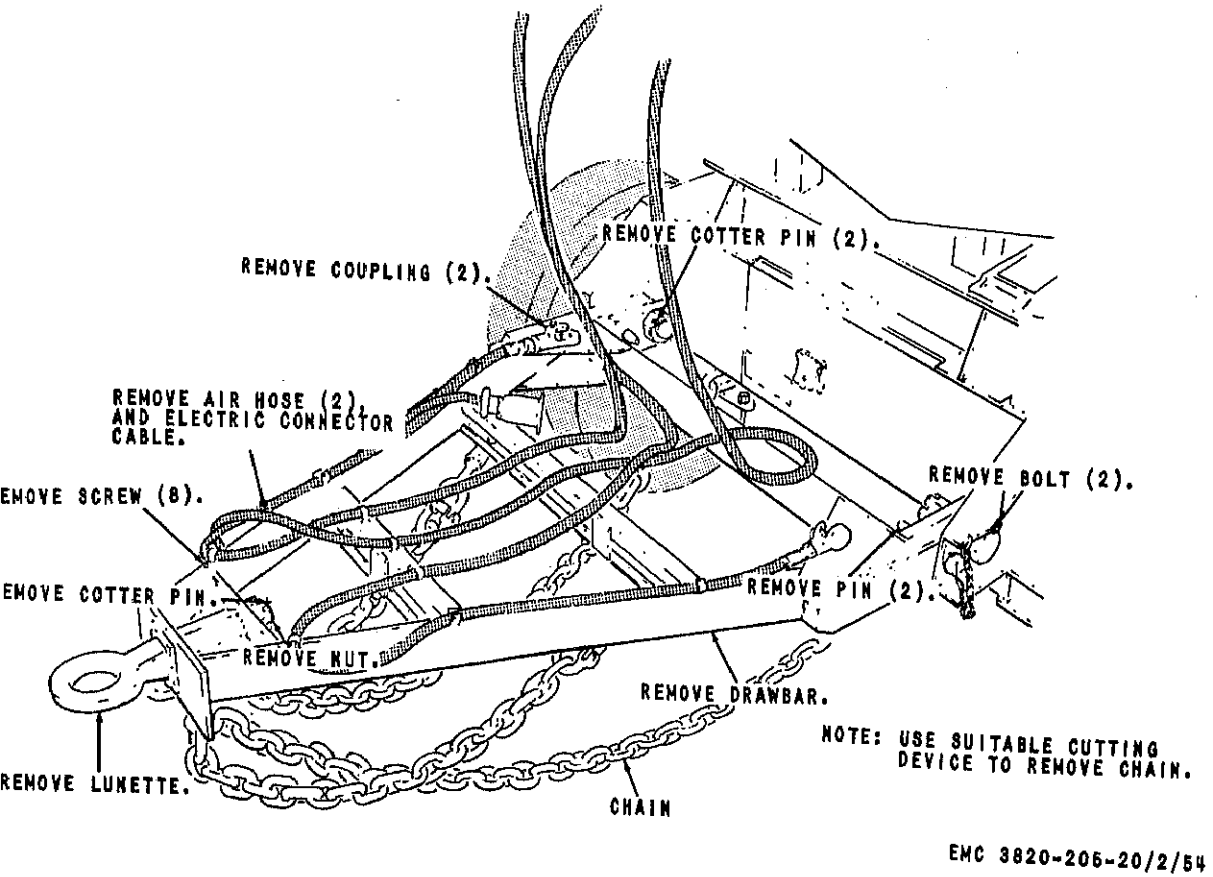
c. Installation. Install the reflector in verse of instructions on figure 53.

121. Safety Chains

a. Removal. Remove the safety chains as structed on figure 59.

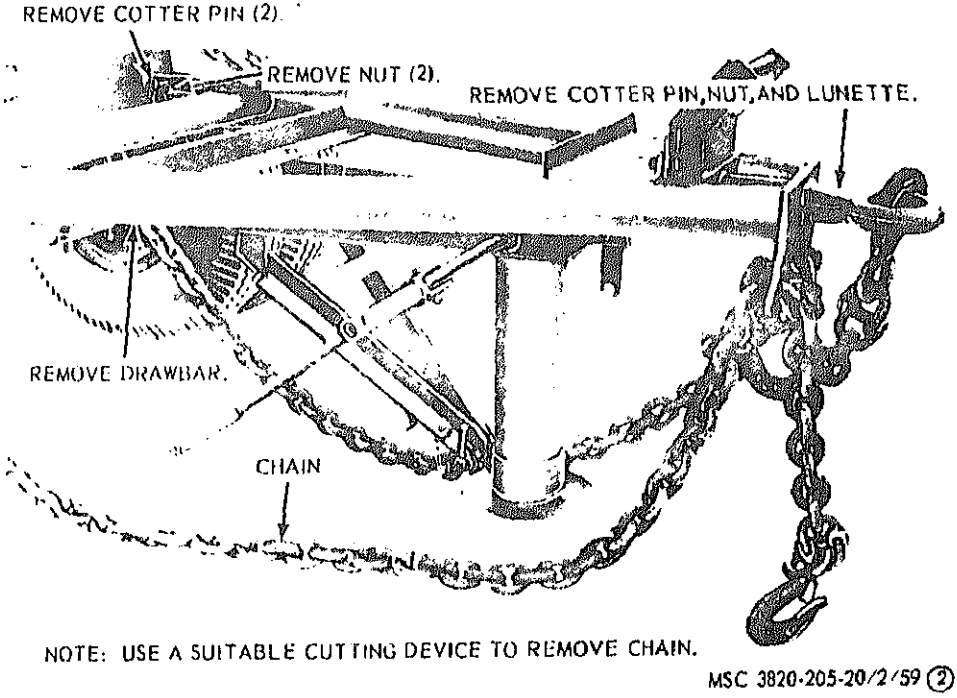
b. Cleaning, Inspection, and Repair. C and inspect the safety chains for wear and d age. Repair by welding, or use repair link suitable heavy clevises.

c. Installation. Install the safety chain



1 Serial No. 2050 through 2087

Figure 59. Drawbar, air hose, fittings, safety chain, and lunette, removal and installation.



2 Serial No. 2090 through 2120

Figure 59—Continued.

CHAPTER 6

CRUSHER MAINTENANCE INSTRUCTIONS

Section I. CRUSHER ELECTRICAL SYSTEM

122. General

The crusher electrical system is comprised of two separate systems. The 24-volt chassis electrical system consists of taillights, blackout light, clearance or marker lights, and necessary wiring to complete the circuit. This system derives its power from the crusher prime mover. The crusher motors electrical system consists of three 10-horsepower electrical motors, an operator's control box, main electrical control panel, and necessary wiring, switches, and electrical hardware to complete the circuits.

123. Taillights

a. Removal and Disassembly. Remove and disassemble the taillights (par. 111).

b. Cleaning, Inspection, and Repair. Clean, inspect, and repair taillight (par. 111).

c. Reassembly and Installation. Reassembly and install taillights (par. 111).

124. Blackout Taillight

a. Removal. Remove the blackout taillight (par. 111).

b. Cleaning, Inspection, and Repair. Clean, inspect, and repair the blackout taillight (par. 111).

c. Installation. Install the blackout taillight (par. 111).

125. Clearance (Marker) Lights and Electrical Conduit

a. Removal. Remove the clearance lights and

c. Cleaning, Inspection, and Repair. Clean and inspect all parts for breaks, cracks, loose or missing hardware, corrosion, and frayed or damaged insulation. Repair or replace if necessary.

d. Reassembly. Reassemble the clearance lights as illustrated on figure 61.

e. Installation. Install the clearance lights and electrical conduit in reverse of instructions on figure 60.

126. Crusher Electrical Connector

a. Removal. Remove the crusher electrical connector (par. 110).

b. Cleaning, Inspection, and Repair. Clean inspect and repair the crusher electrical connector.

c. Installation. Install the crusher electrical connector (par. 110).

127. Pan Feeder Drive Motor, Belts, and Turn Buckle Assembly

a. Removal.

(1) Remove the pan feeder motor as instructed on figure 62.

(2) Remove the turn buckle assembly illustrated on figure 62.

b. Cleaning, Inspection, and Repair. Clean and inspect all parts for loose or missing hardware and defective or damaged parts. Replace a defective part.

c. Installation.

(1) Install the pan feeder motor and drive

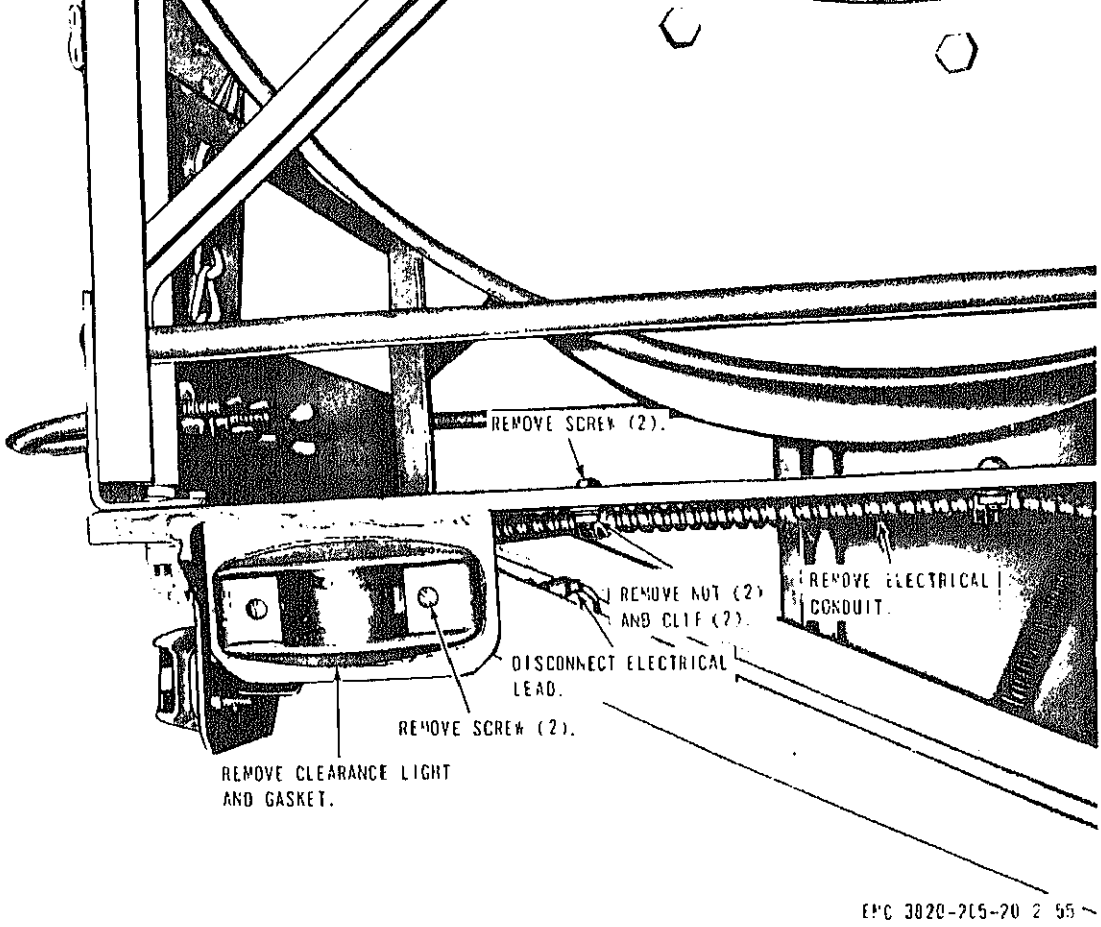


Figure 60. Clearance light and electrical conduit, removal and installation.

Scalper Vibrating Screen Drive Motor and Belts

Removal.

(1) Remove the belt guard (TM 5–3820–205–10/2).

(2) Remove the scalper vibrating screen drive motor and belts as instructed on figure 63.

Cleaning and Inspection. Clean all parts inspect for loose or missing hardware and aged or defective parts. Replace a defec-

129. Discharge Conveyor Drive Motor and Belts

a. Removal. Remove the discharge conveyor drive motor and belts as instructed on figure 62.

b. Cleaning and Inspection. Clean all parts and inspect for loose or missing hardware, and damaged or defective parts. Replace defective parts as necessary.

c. Installation. Install the discharge conveyor motor and drive belts in reverse of the instructions on figure 62.

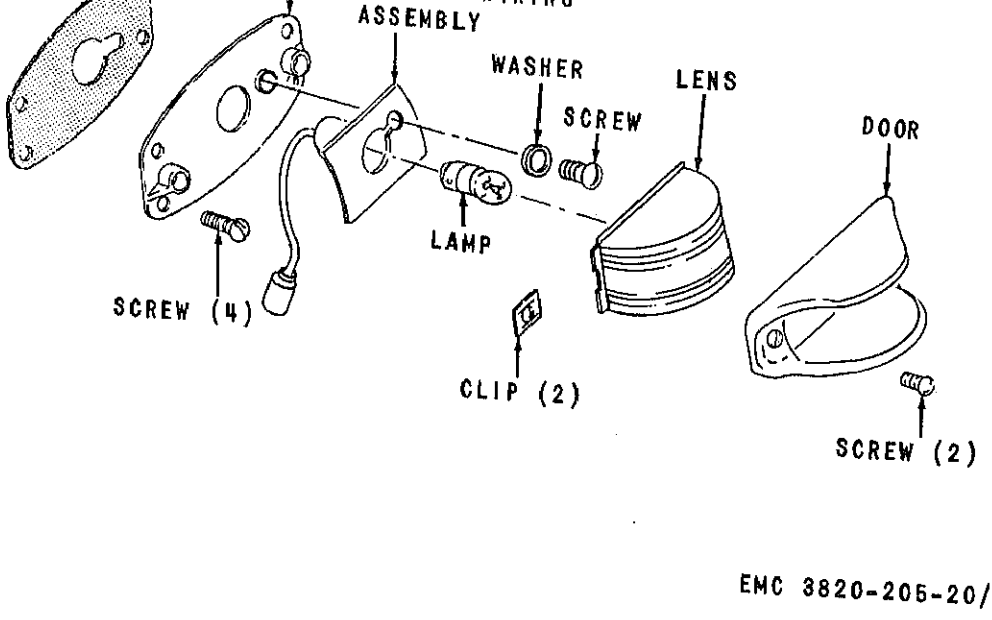


Figure 61. Clearance light, exploded view.

ther damage. Replace a defective or dam- l heater or magnetic starter if necessary.

Installation. Install the magnetic starter everse of instructions on figure 64.

Pushbutton Controls

Removal. Remove pushbutton controls as ucted on figure 65.

Cleaning and Inspection. Clean and in- all parts. Replace a damaged or defective button control if necessary.

Installation. Install the pushbutton con- in reverse of instructions on figure 65.

Power Cable

Removal. Remove the power cable from ble reel (TM 5-3820-205-10/2).

Cleaning and Inspection. Clean and inspect the power cable for cut or deteriorated insulation, breaks, damaged connectors, or other damage. Replace a defective or damaged power cable.

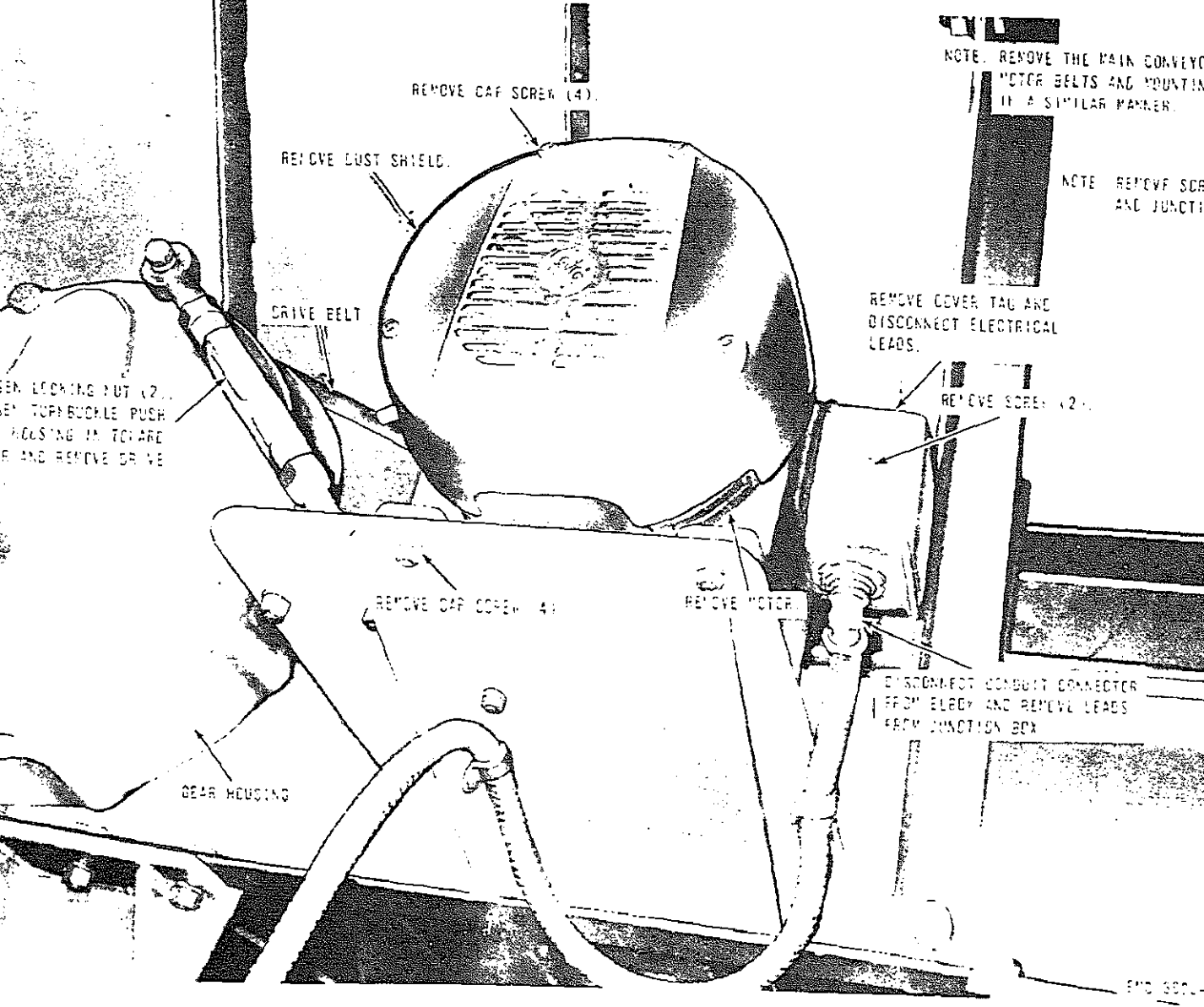
c. Installation. Install the power cable on cable reel (TM 5-3820-205-10/2).

133. Main Electrical Emergency Stop Control Button

a. Removal. Remove the main electrical emergency stop control button as instructed on figure 65.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective or damaged part as necessary.

c. Installation. Install the main electrical emergency stop control button in reverse of instructions on figure 65.


NOTE. REMOVE THE MAIN CONVEYO
MOTOR BELTS AND MOUNTIN
IN A SIMILAR MANNER.
NOTE REMOVE SCR
AND JUNCTI
REMOVE CAP SCREW (4).
REMOVE DUST SHIELD.
DRIVE BELT
REMOVE COVER TAG AND
DISCONNECT ELECTRICAL
LEADS.
REMOVE SCREW (2).
REMOVE CAP SCREW (4)
REMOVE MOTOR
DISCONNECT CONDUIT CONNECTOR
FROM ELBOW AND REMOVE LEADS
FROM JUNCTION BOX
GEAR HOUSING

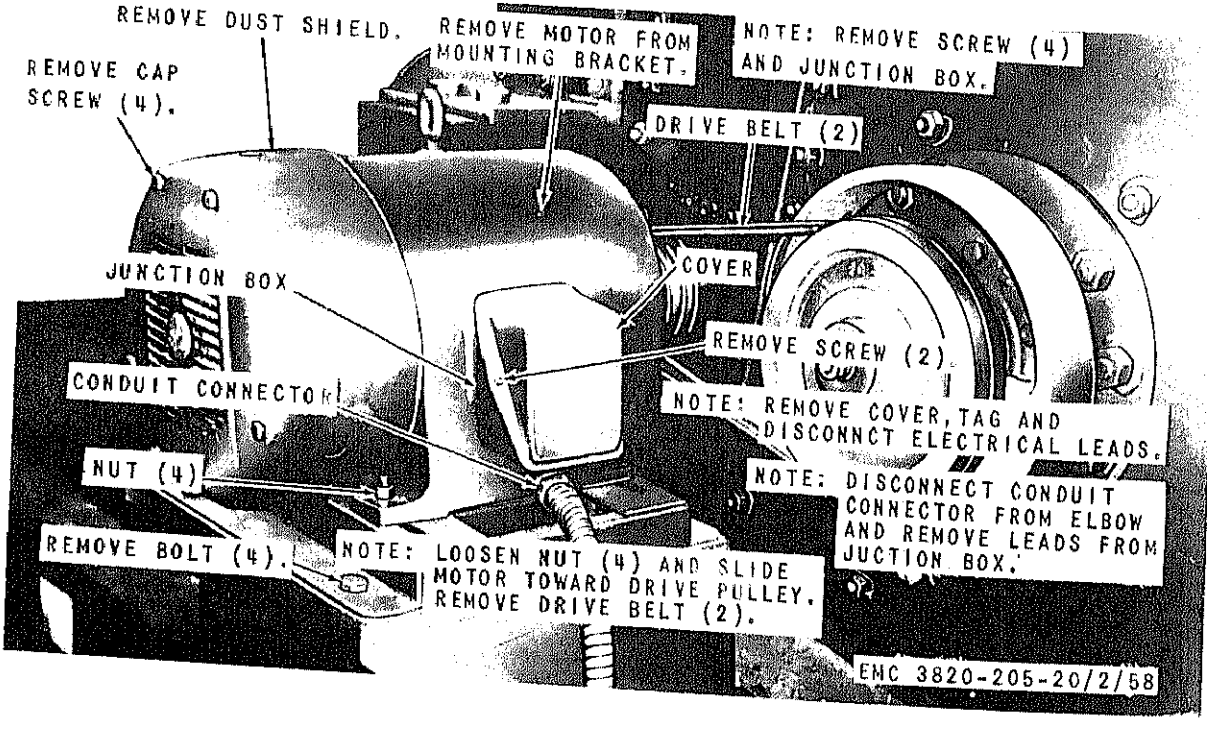
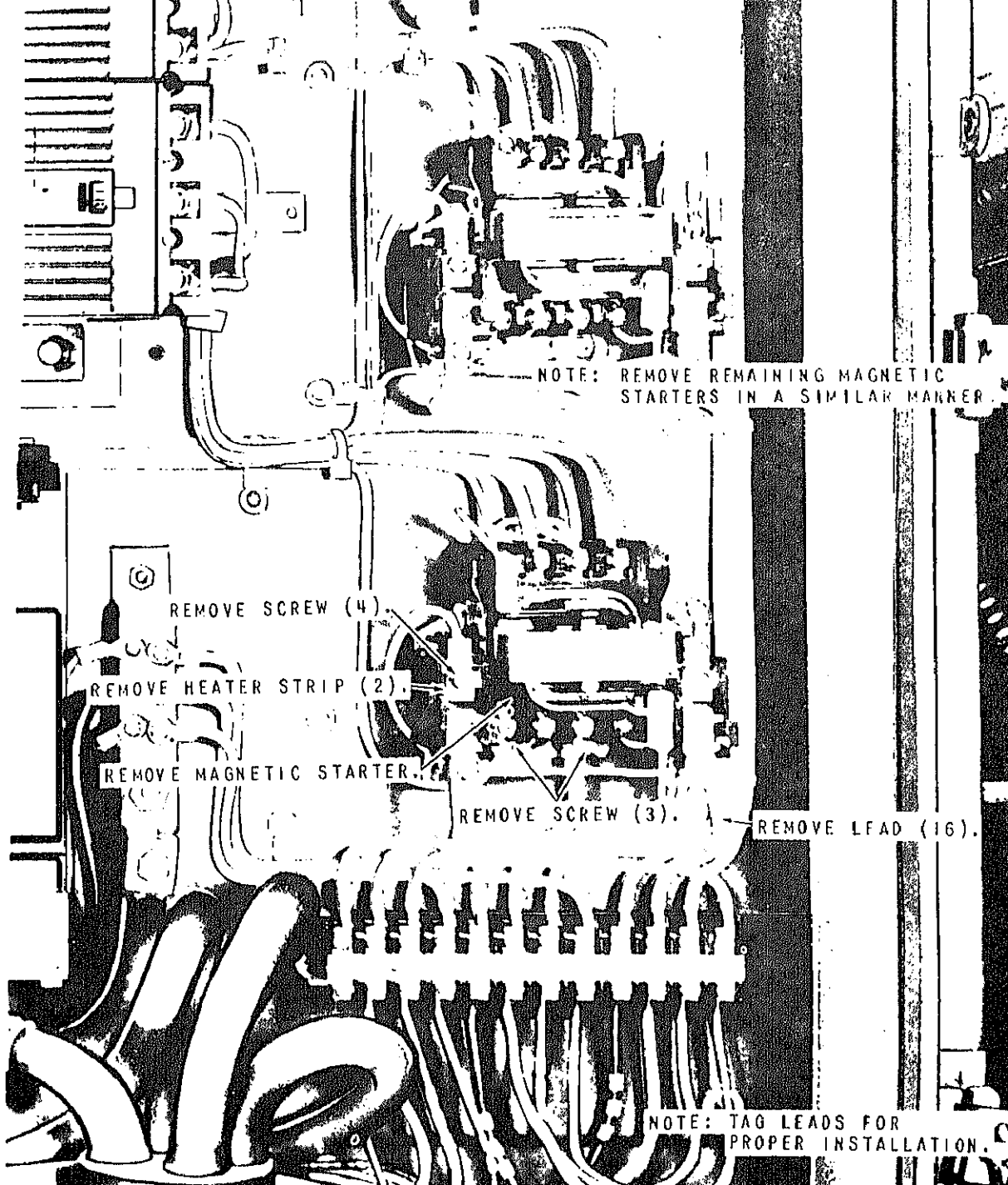
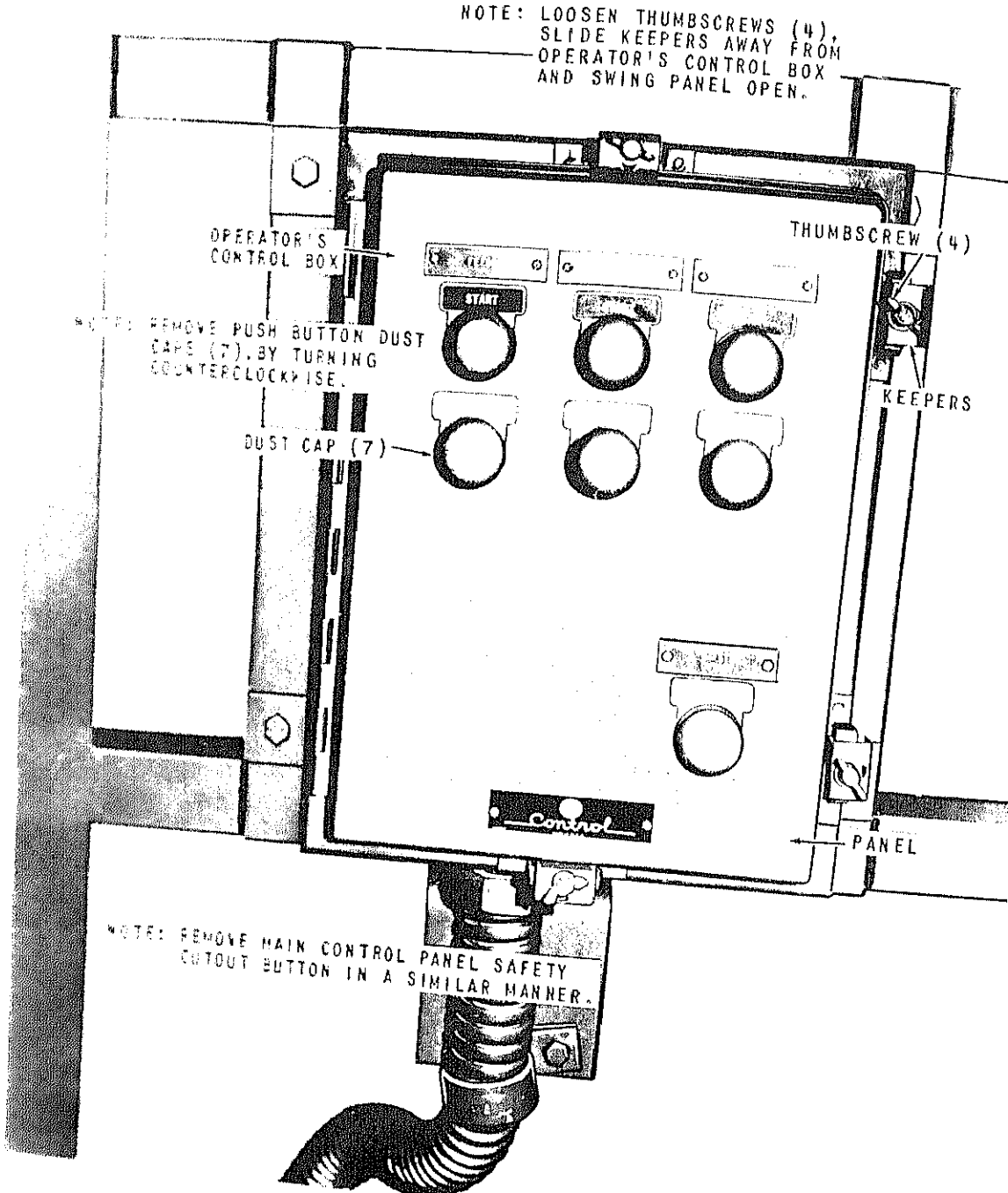
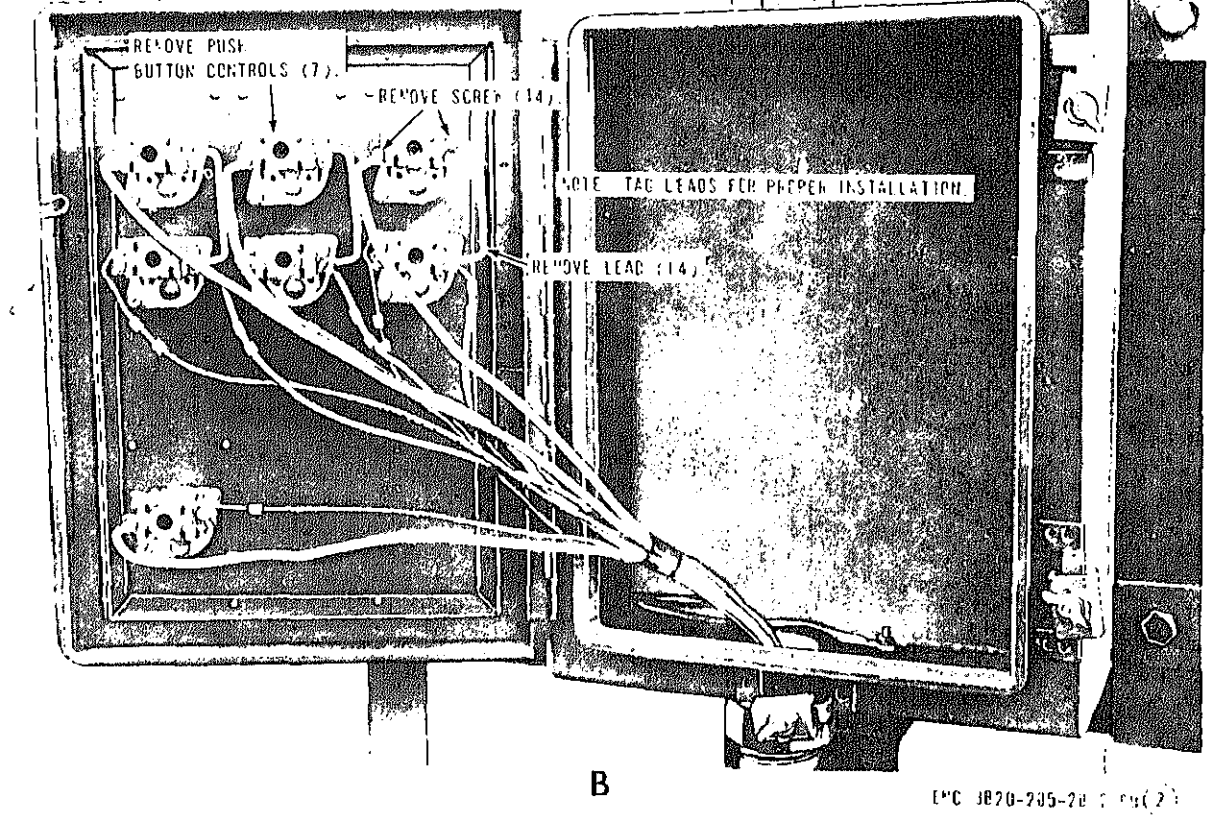


Figure 63. Scalper vibrator screen drive motor and belts, removal and installation.


NOTE: REMOVE REMAINING MAGNETIC STARTERS IN A SIMILAR MANNER.
REMOVE SCREW (4).
REMOVE HEATER STRIP (2).
REMOVE MAGNETIC STARTER.
REMOVE SCREW (3).
REMOVE LEAD (16).
NOTE: TAG LEADS FOR PROPER INSTALLATION.


NOTE: LOOSEN THUMBSCREWS (4), SLIDE KEEPERS AWAY FROM OPERATOR'S CONTROL BOX AND SWING PANEL OPEN.
OPERATOR'S CONTROL BOX
THUMBSCREW (4)
NOTE: REMOVE PUSH BUTTON DUST CAPS (7) BY TURNING COUNTERCLOCKWISE.
KEEPERS
DUST CAP (7)
START
Control
PANEL
NOTE: REMOVE MAIN CONTROL PANEL SAFETY CUTOUT BUTTON IN A SIMILAR MANNER.



B Operator's control box rear view

Figure 65—Continued.

Section II. HYDRAULIC SYSTEM

General

e crusher hydraulic system includes a tank an internally mounted, hand operated). A hose with a manually operated valve ects the pump to the five stage hydraulic der used to raise or lower the pan feeder mbly.

Hydraulic Hose, Pump, and Valve

Removal.

(1) Drain the hydraulic system (TM 5-

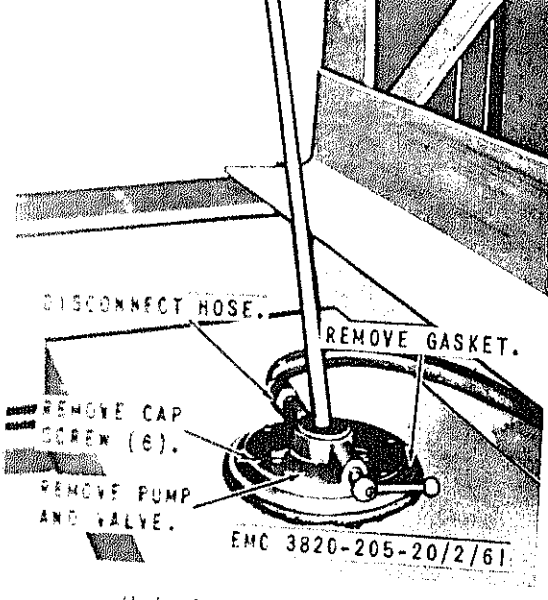
e. Cleaning, Inspection, and Repair. Clean and inspect all parts. Replace or repair all damaged parts.

d. Reassembly. Reassemble the hydraulic pump and valve as illustrated on figure 67.

e. Installation.

(1) Install the hose, pump, and valve in reverse of instructions on figure 66.

(2) Fill the hydraulic system (TM 5-3820-205-10/2).



Hydraulic hose, pump, and valve, installed view.

b. Cleaning and Inspection. Clea
spect all parts. Replace all damaged

c. Installation.

(1) Install the hydraulic tank an
et in reverse of instructions
68.

(2) Install the hose, pump, an
(par. 135).

137. Hydraulic Cylinder and Hose

a. Removal. Remove the hydraulic
and hose as instructed on figure 69.

b. Cleaning and Inspection. Clean
spect all parts. Replace all damaged pa

c. Installation. Install the hydraulic c
and hose in reverse of instructions on fig

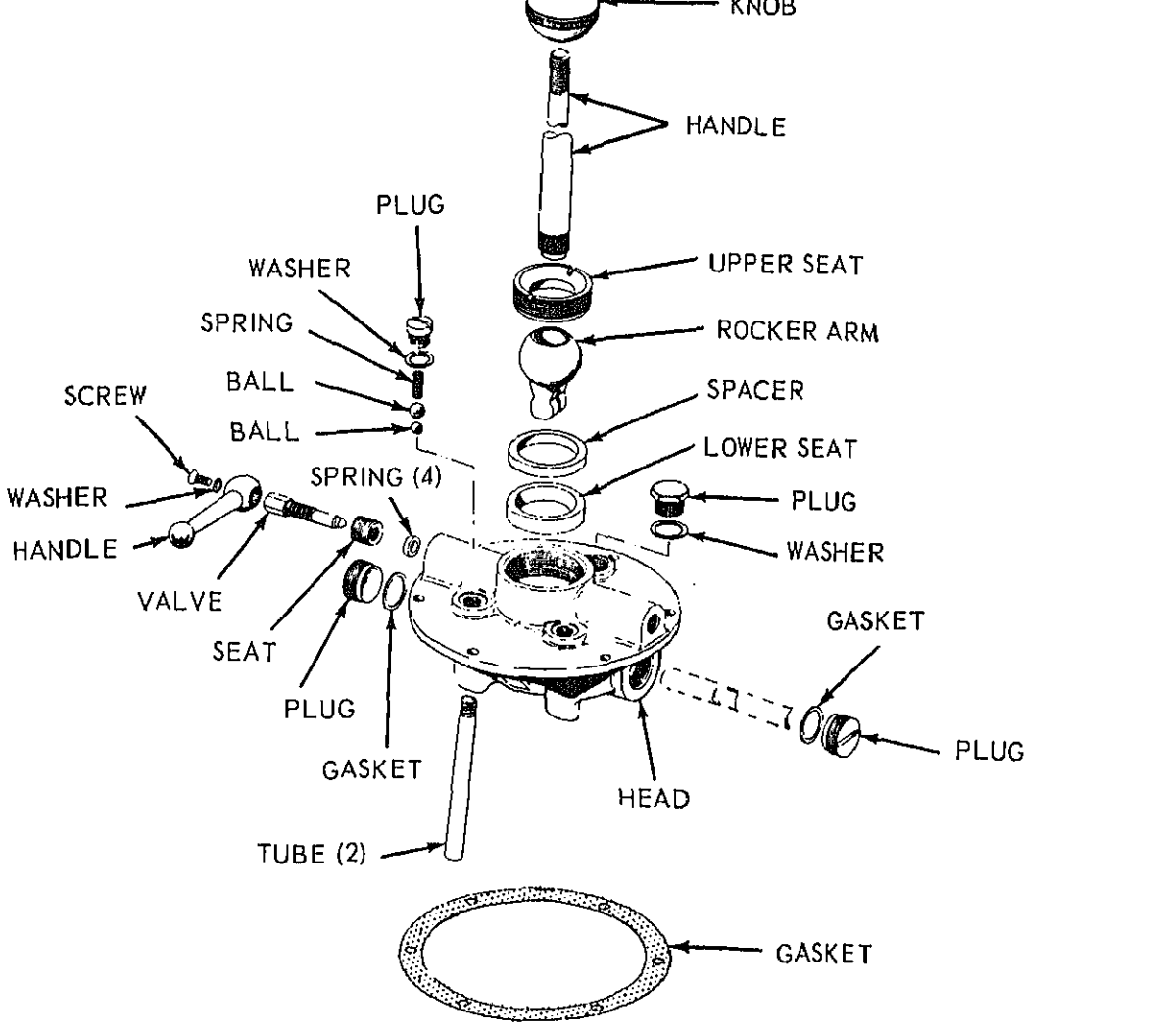


Figure 67. Hydraulic pump and valve, exploded view.

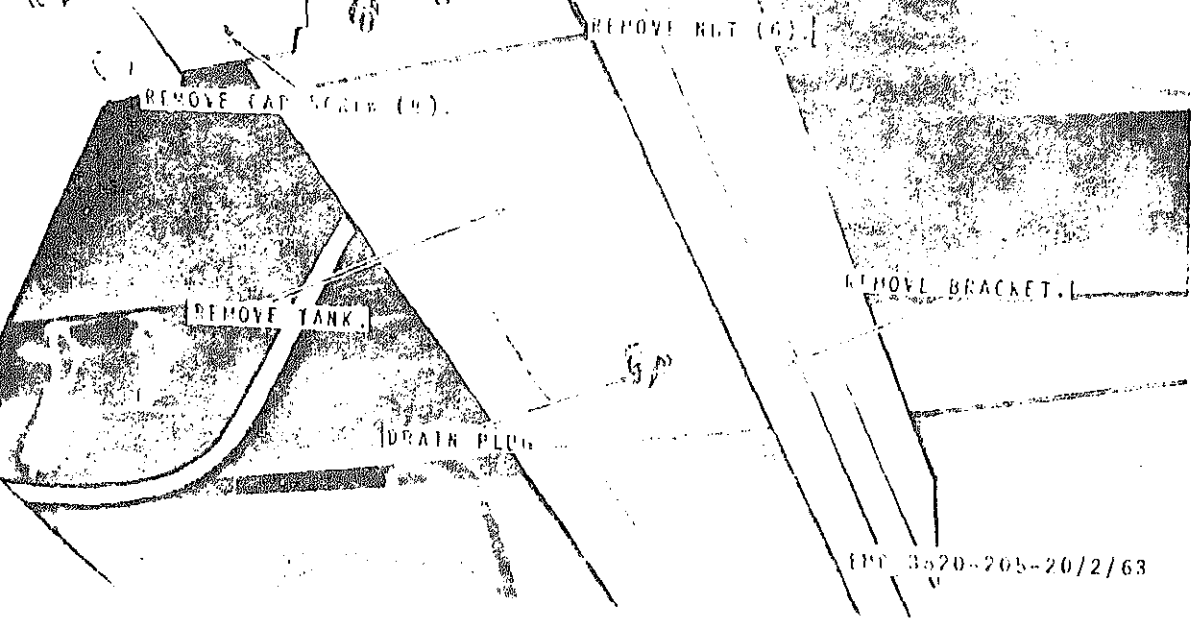
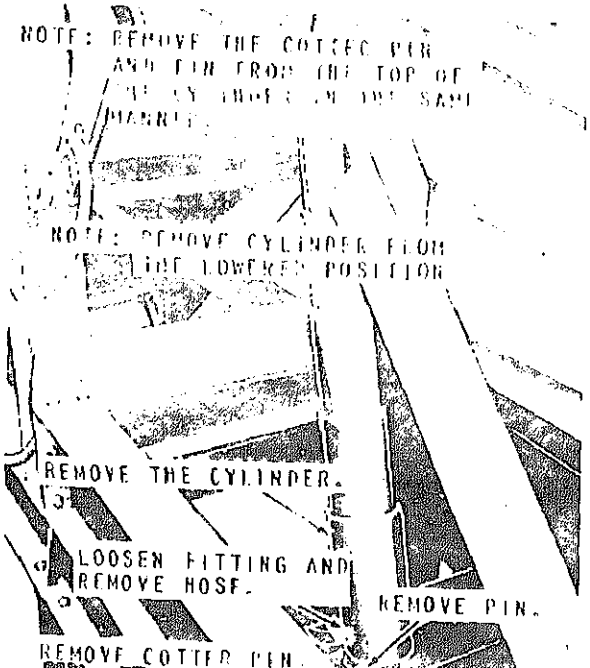


Figure 68. Hydraulic tank and bracket, installed view.



138. General

The air system consists of the hose, lines, valves, filters, chambers, and air tank. The air system is used to actuate the brakes when the saw crusher is being towed from one location to another.

139. Air Brake Chamber

a. Removal. Remove the air brake chamber as instructed on figure 70.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a defective air brake chamber.

c. Installation. Install the air brake chamber in reverse of instructions on figure 70.

140. Relay Valve

a. Removal. Remove the relay valve as instructed on figure 71.

b. Cleaning and Inspection. Clean and inspect the relay valve. Replace a defective relay valve.

c. Installation. Install the relay valve in reverse of instructions on figure 71.

141. Air Filter

a. Removal. Remove the air filter as instructed on figure 72.

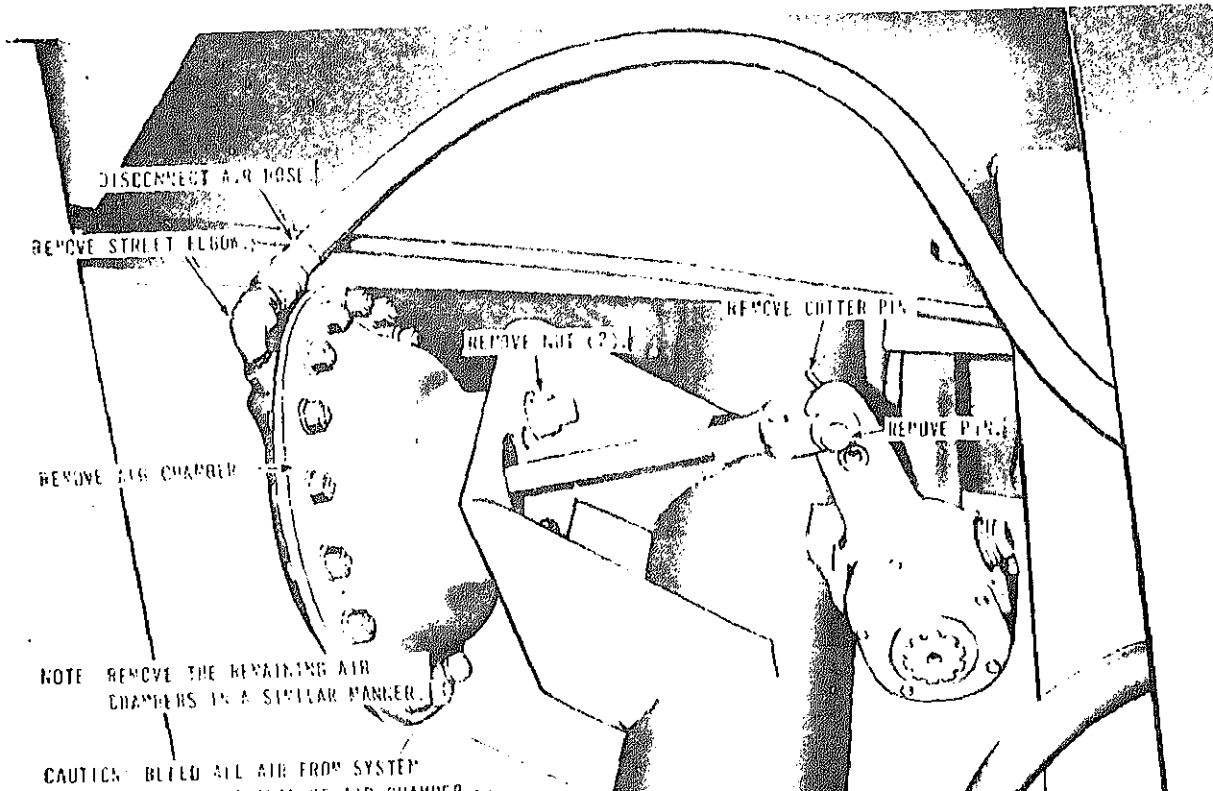
b. Cleaning and Inspection. Clean and inspect the air filters. Replace a defective filter.

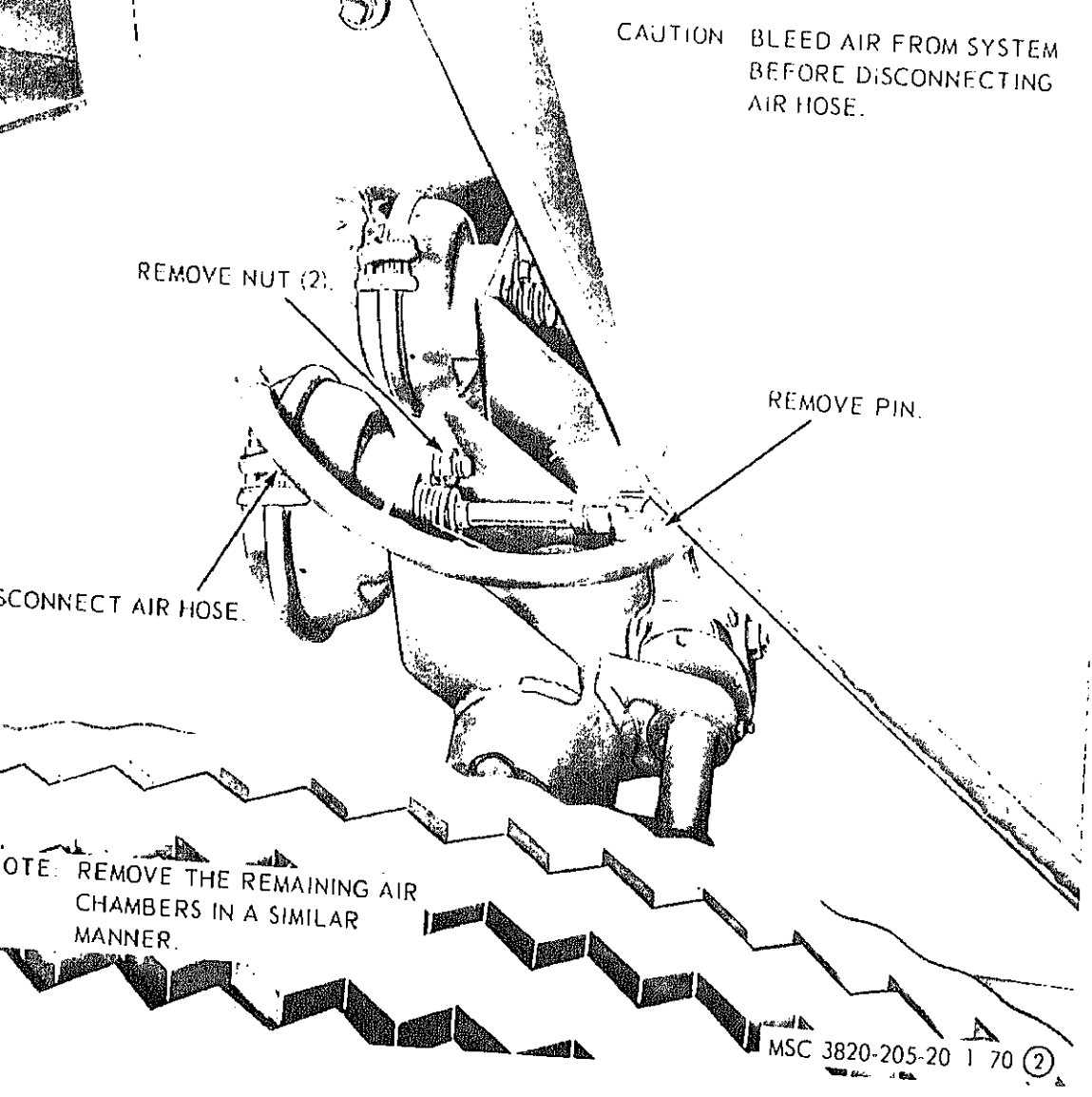
c. Installation. Install the air filter in reverse of instructions on figure 72.

142. Air Tank

a. Removal. Remove the air tank as instructed on figure 73.

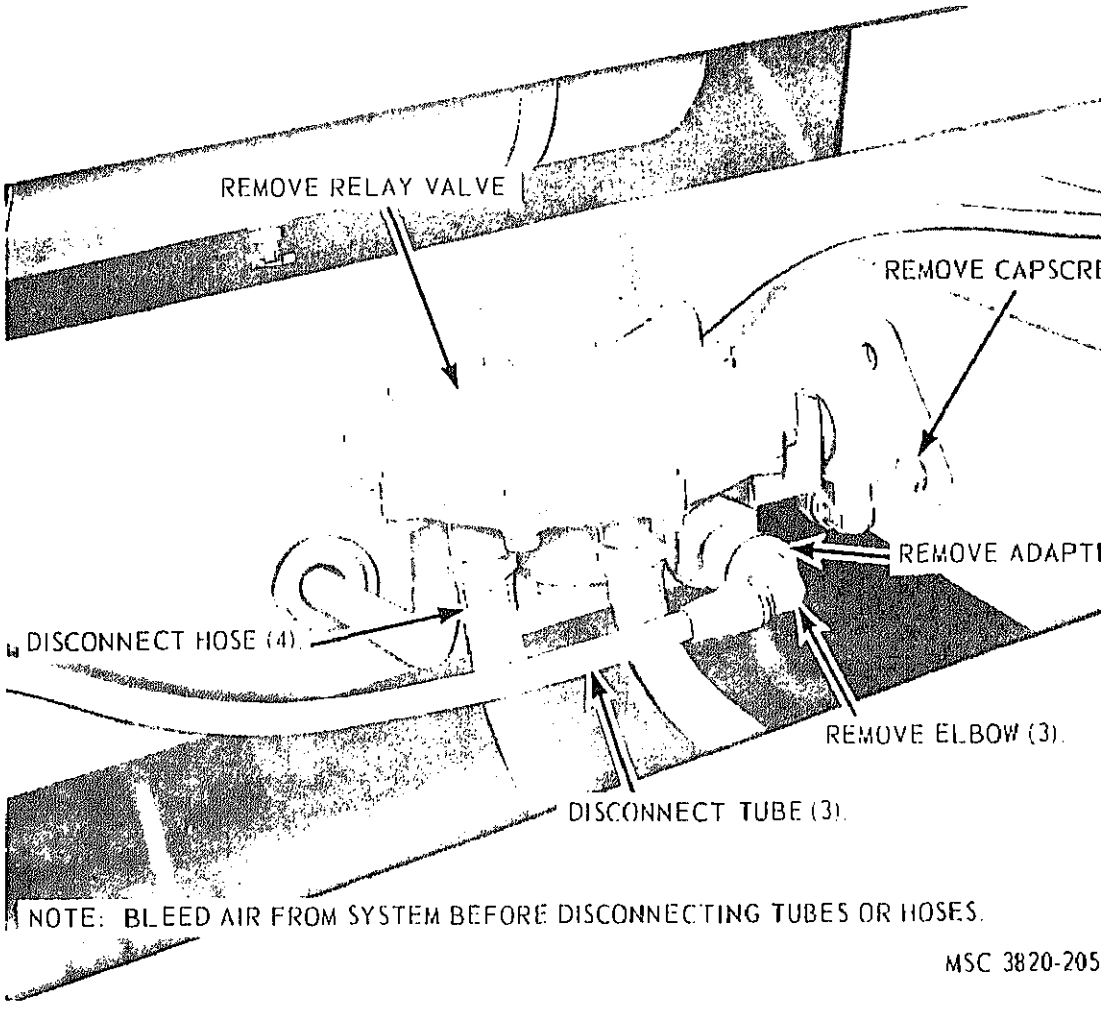
b. Cleaning and Inspection. Clean and inspect the air tank. Replace a defective air tank.





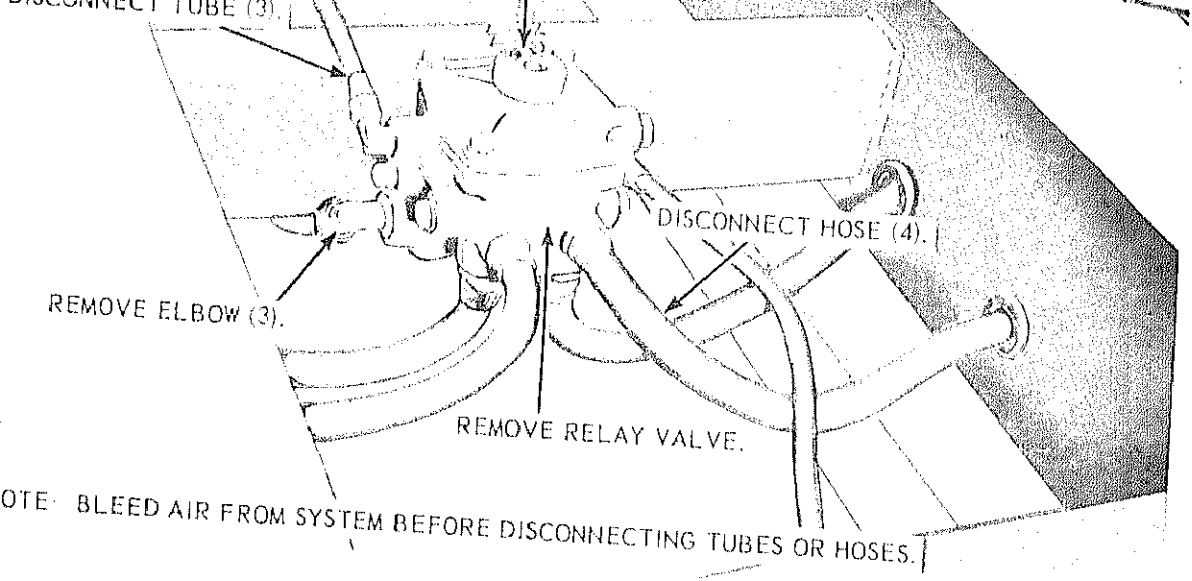
2 Serial No. Tunpe 2010 through 2129

Figure 70—Continued.



A On units of equipment within serial No. range 2050 through 2087 only

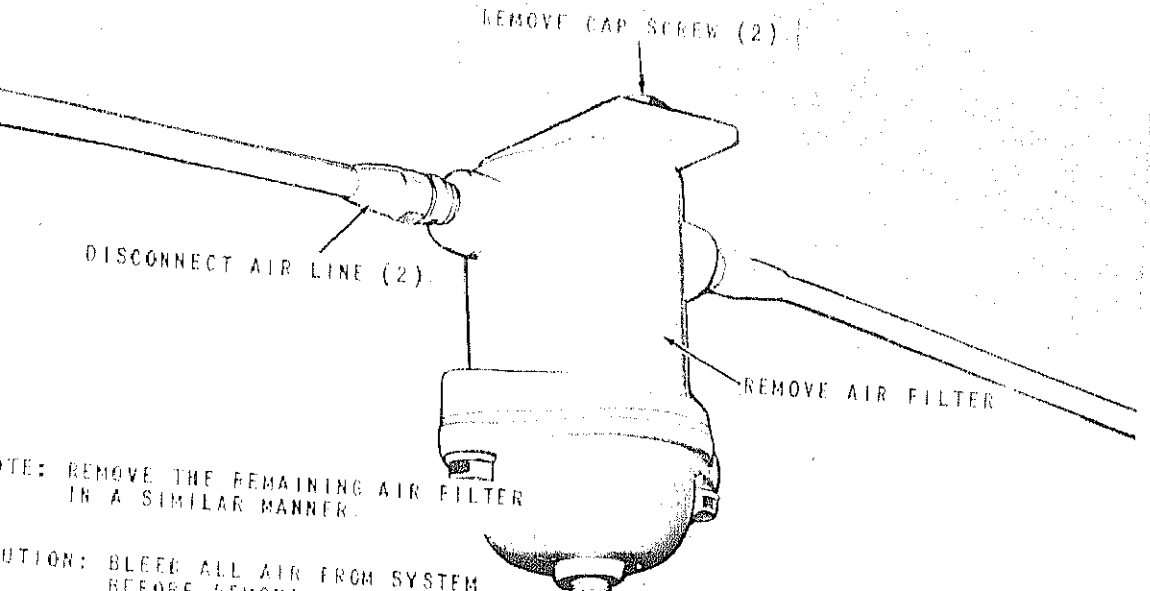
Figure 71. Relay valve, installed view.



MSC 3820-205-20 2/71 (2)

B—On units of equipment within serial No. range 2090 through 2129 only

Figure 71—Continued.



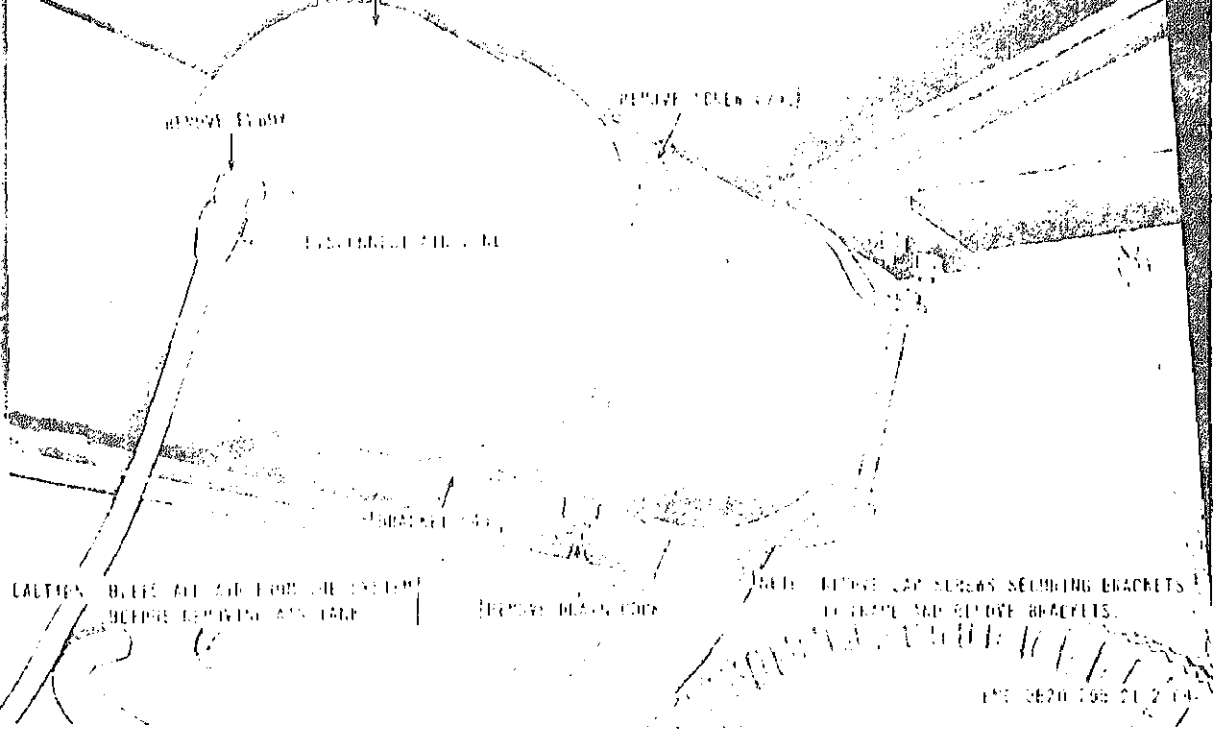


Figure 7-6. Air tank, mounting, and installation.

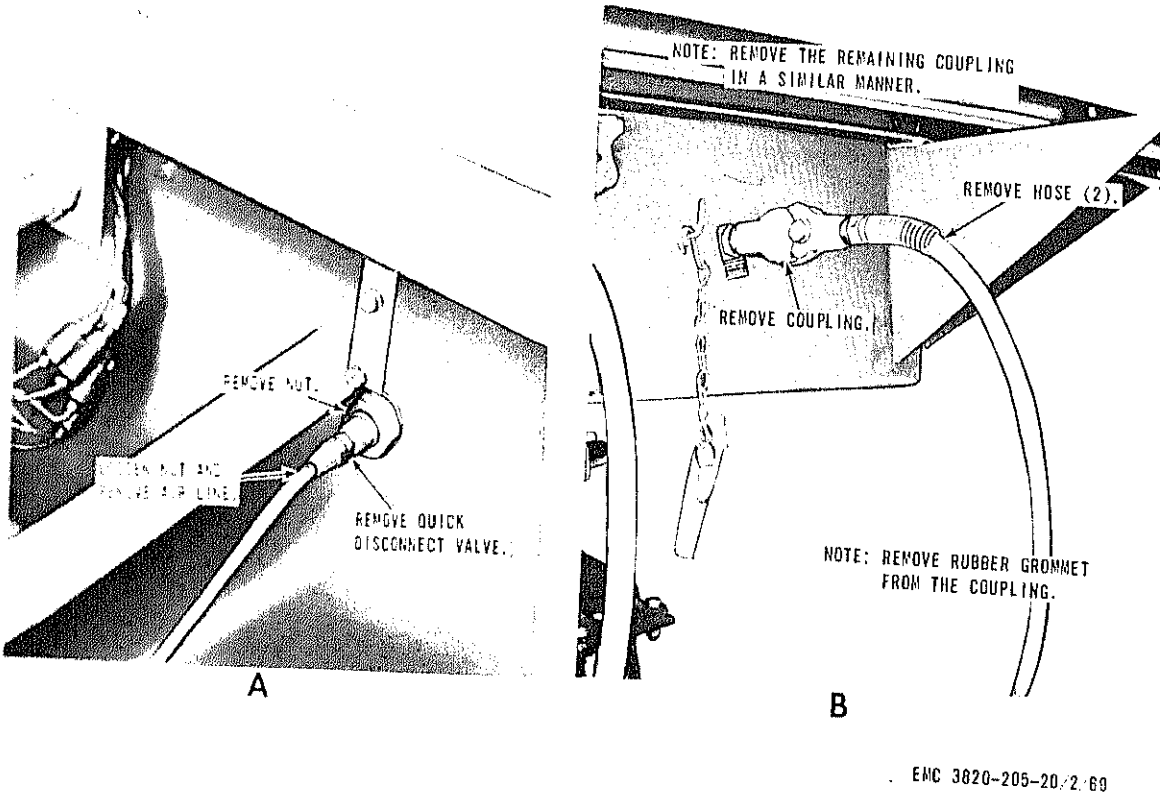
. *Installation.* Install the air tank in reverse the instructions on figure 7-6.

3. Couplings and Hoses

. *Removal.* Remove the coupling and hoses instructed on figure 7-1.

b. Cleaning, Inspection, and Repair. Clea and inspect all parts. Replace or repair a damaged parts.

c. Installation. Install the couplings an hoses in reverse of the instructions on figure 7



A—Couplings rear view
B—Couplings front view

Figure 74. Couplings and hoses, removal and installation.

Section IV. PAN FEEDER ASSEMBLY

144. General

The pan feeder initially receives the rock to be crushed and feeds it into the scalper vibrating screen assembly. The pan feeder assembly consists of a hopper, an electric motor, motor drive belts, reducer gears, drive sheaves, sprockets, frame and an apron which is made up of bars, pins, rollers, and pans assembled together to form an endless metal belt.

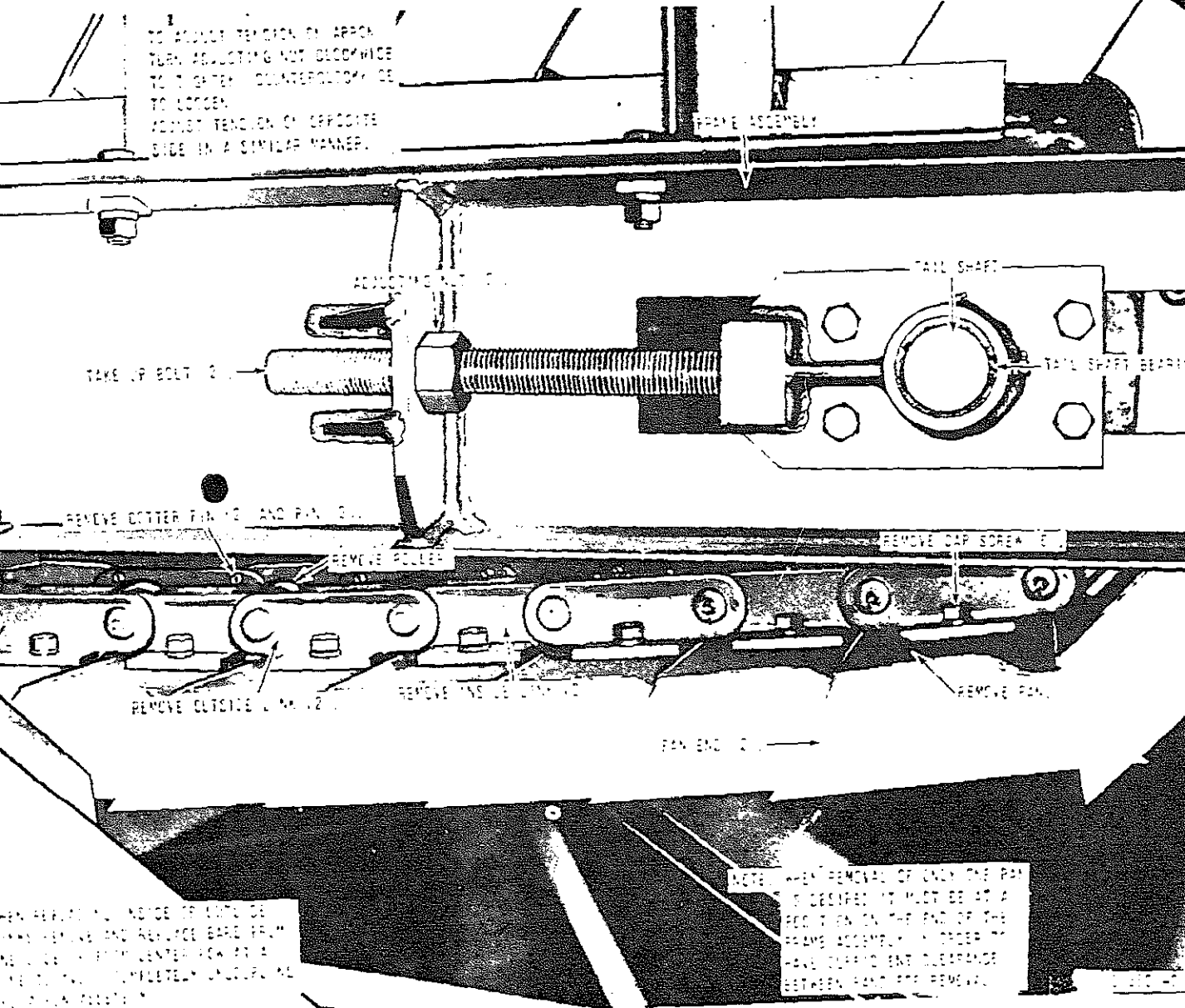
145. Pan Feeder Apron.

a. Removal. Remove the pan feeder apron as instructed on figure 75.

b. Cleaning, Inspection, and Repair. Clean and inspect all parts. Pay particular attention to the bearings of the rollers and the end pans. Reweld any loose end pan welds. Replace a defective or damaged part as necessary.

c. Installation. Install the pan feeder apron in reverse of the instructions on figure 75.

d. Adjustment. Adjust the tension of the pan feeder apron as


BRAKE ASSEMBLY
TAIL SHAFT
TAKE UP BOLT
REMOVE COTTER PIN
REMOVE PULLEY
REMOVE CAP SCREW
REMOVE PAN
PAN END

a. Removal. Remove the scalper vibrating screen rubber deflectors as instructed on figure 77.

b. Cleaning and Inspection. Clean and inspect all parts. Inspect the rubber deflectors for cuts, tears, or signs of deterioration. Replace a damaged or defective part as necessary.

c. Installation. Install the scalper vibrating screen rubber deflectors in reverse of the instructions on figure 77.

150. Grizzly Bars

a. Removal. Remove the grizzly bars as instructed on figure 78.

b. Cleaning and Inspection. Clean and inspect all parts. Replace a damaged parts as required.

c. Installation. Install the grizzly bars in reverse of instructions on figure 78.

a. Removal.

(1) Remove the scalper vibrating sc drive belt guard (TM 5-3820- 10/2).

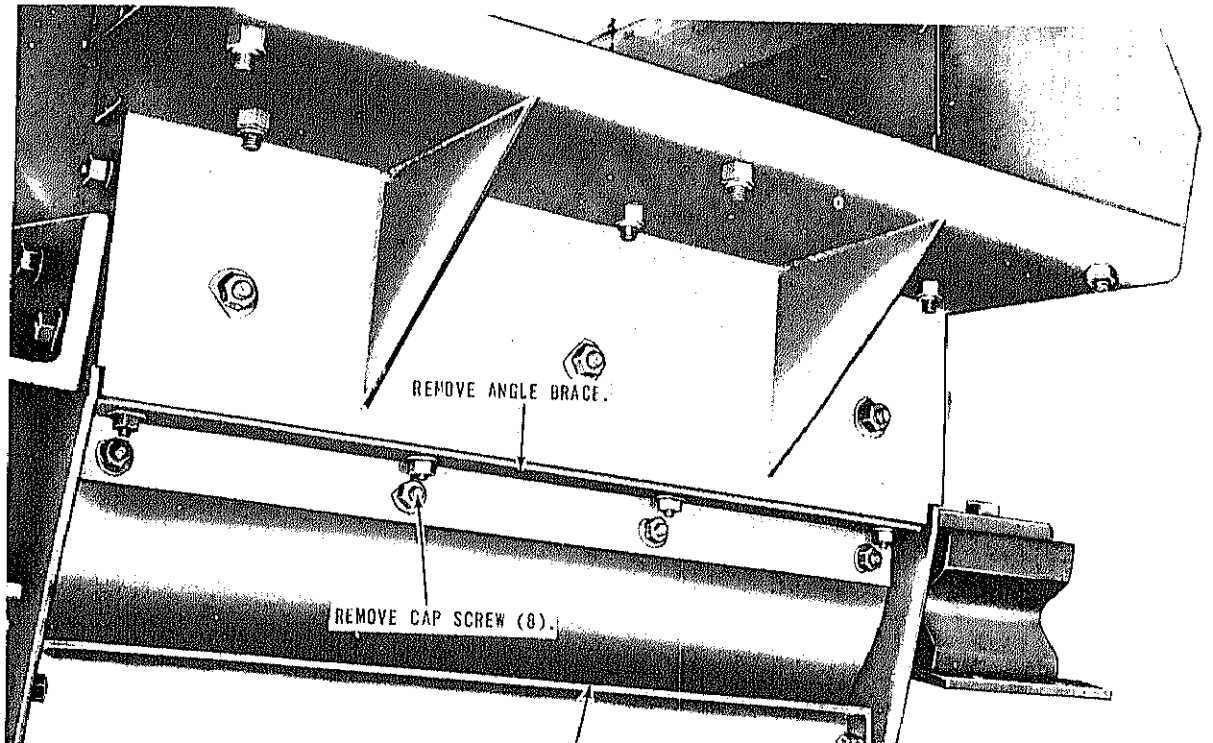
(2) Remove the scalper vibrating sc assembly rubber mountings as structed on figure 79.

b. Cleaning and Inspection. Clean and spect all parts. Replace a damaged or defec part as necessary.

c. Installation.

(1) Install the scalper vibrating sc assembly rubber mountings in rev of instructions on figure 79.

(2) Install the scalper vibrating sc drive belt guard (TM 5-3820-2 10/2).



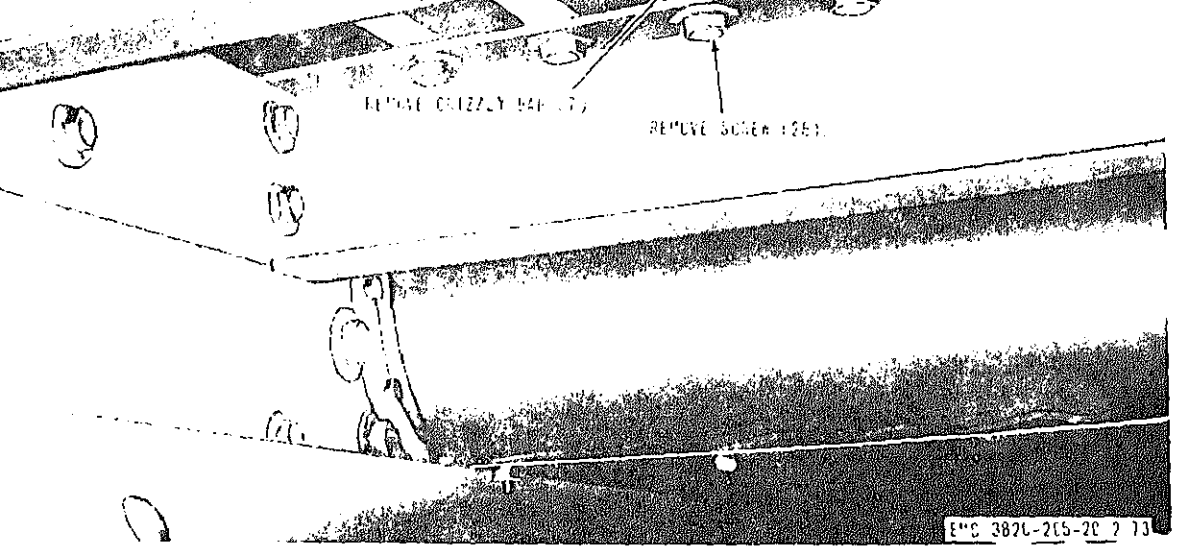
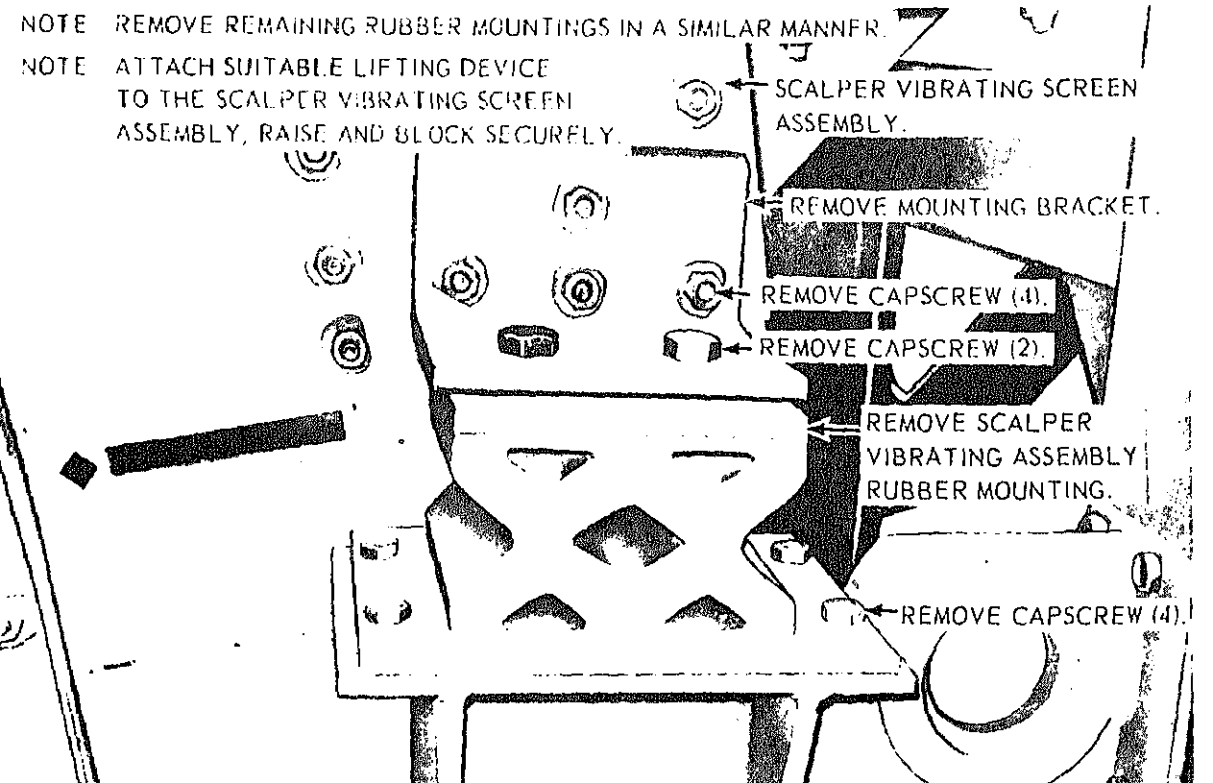


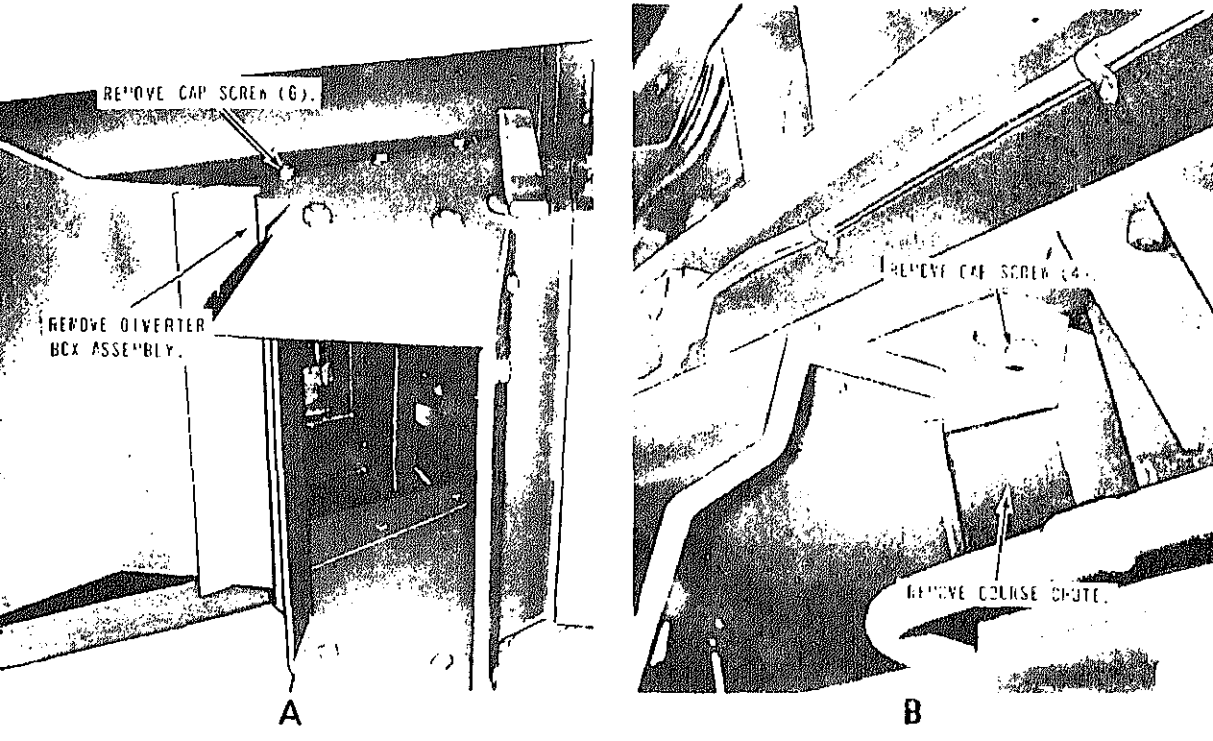
Figure 28. Grizzly bars, removal and installation.



b. Disassembly. Disassemble the diverter box, chutes, and gate as illustrated on figure 81.

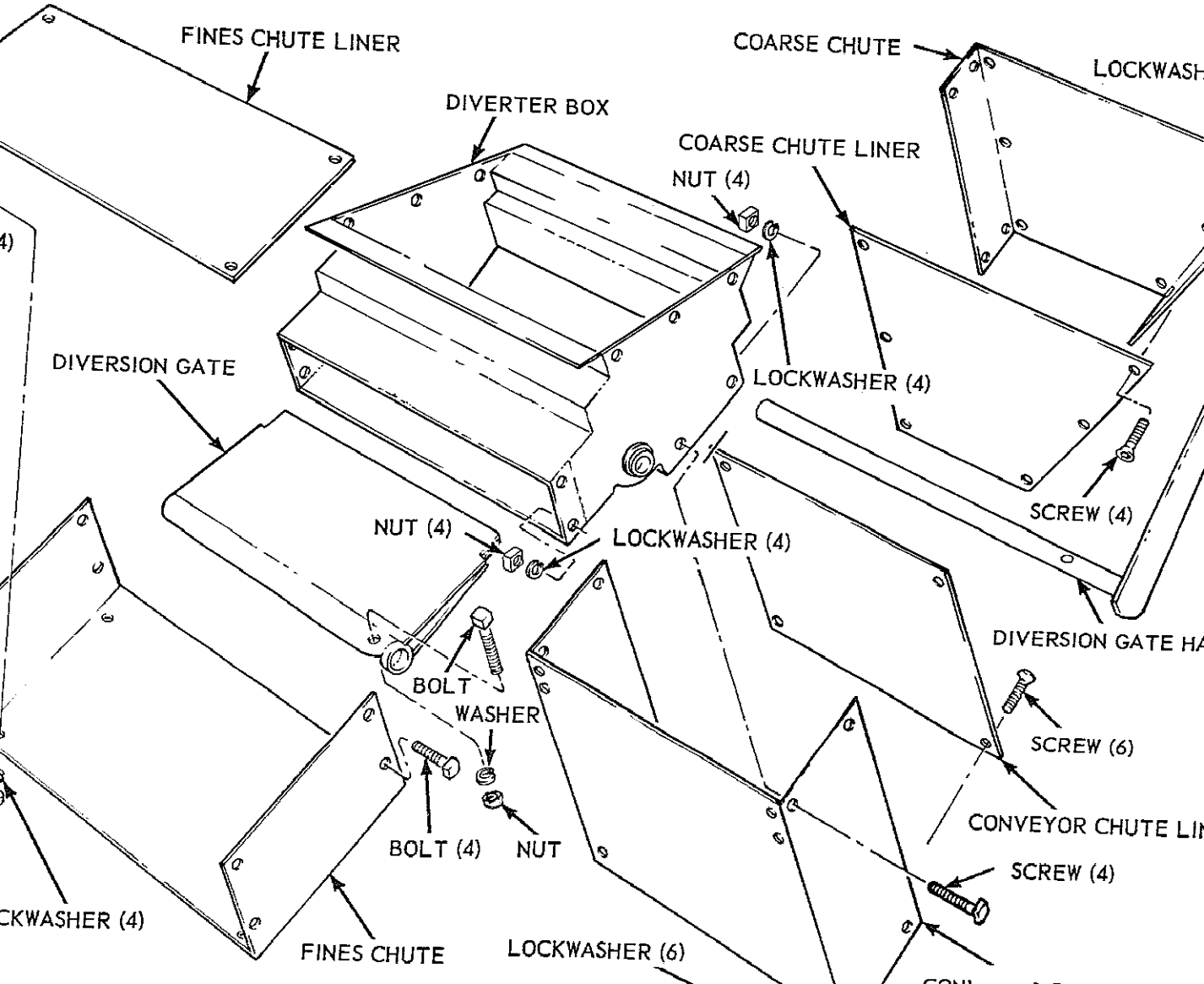
c. Cleaning, Inspection, and Repair. Clean

e. Installation. Install the diverter box a coarse chute in reverse of instructions on fig 80.



A—Diverter box installed
B—Coarse chute installed

Figure 80. Diverter box and coarse chute, removal and installation.


FINES CHUTE LINER
DIVERTER BOX
COARSE CHUTE
LOCKWASH
COARSE CHUTE LINER
NUT (4)
LOCKWASHER (4)
DIVERSION GATE
SCREW (4)
NUT (4)
LOCKWASHER (4)
DIVERSION GATE HA
BOLT
WASHER
SCREW (6)
CONVEYOR CHUTE LIN
BOLT (4)
NUT
SCREW (4)
CKWASHER (4)
FINES CHUTE
LOCKWASHER (6)

153. General

The crusher assembly consists of a movable jaw and a stationary jaw made to crush aggregate any size from 1½ inches to 5 inches. The crusher is driven by belts from the diesel engine drive sheave to the crusher grooved balance wheel.

154. Drive Belt Guard Assembly

a. Removal. Remove the drive belt guard as instructed on figure 82.

b. Cleaning and Inspection. Clean and inspect all parts. Replace all damaged or defective parts.

c. Installation. Install the drive belt guard assembly in reverse of instructions on figure 82.

155. Drive Belts

a. Adjustment.

(1) Remove the outer belt guard (par. 154).

(2) Adjust the drive belt as instructed on figure 83.

(3) Install the outer drive belt guard (par. 154).

b. Removal.

(1) Remove the outer belt guar 154).

(2) Loosen drive belt tension as in on figure 83 and remove drive

c. Cleaning and Inspection. Clean spect drive belts. Replace belts as a s are damaged or defective.

d. Installation.

(1) Install the drive belts and ad tension in reverse of instruc figure 83.

(2) Install the outer drive bel (par. 154).

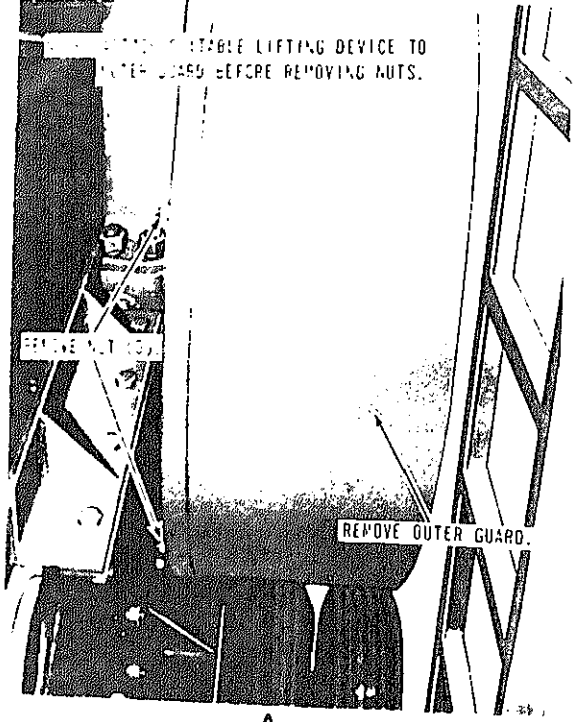
156. Tension Spring

a. Removal. Remove the tension s instructed on figure 84.

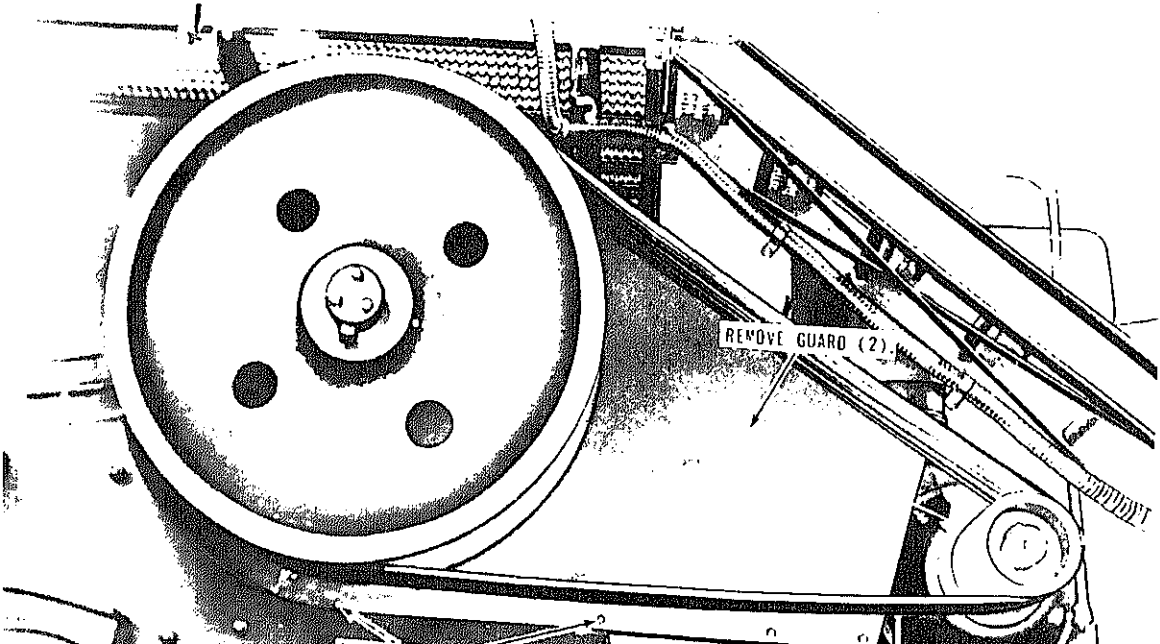
b. Cleaning and Inspection. Clean spect all parts. Replace all damaged

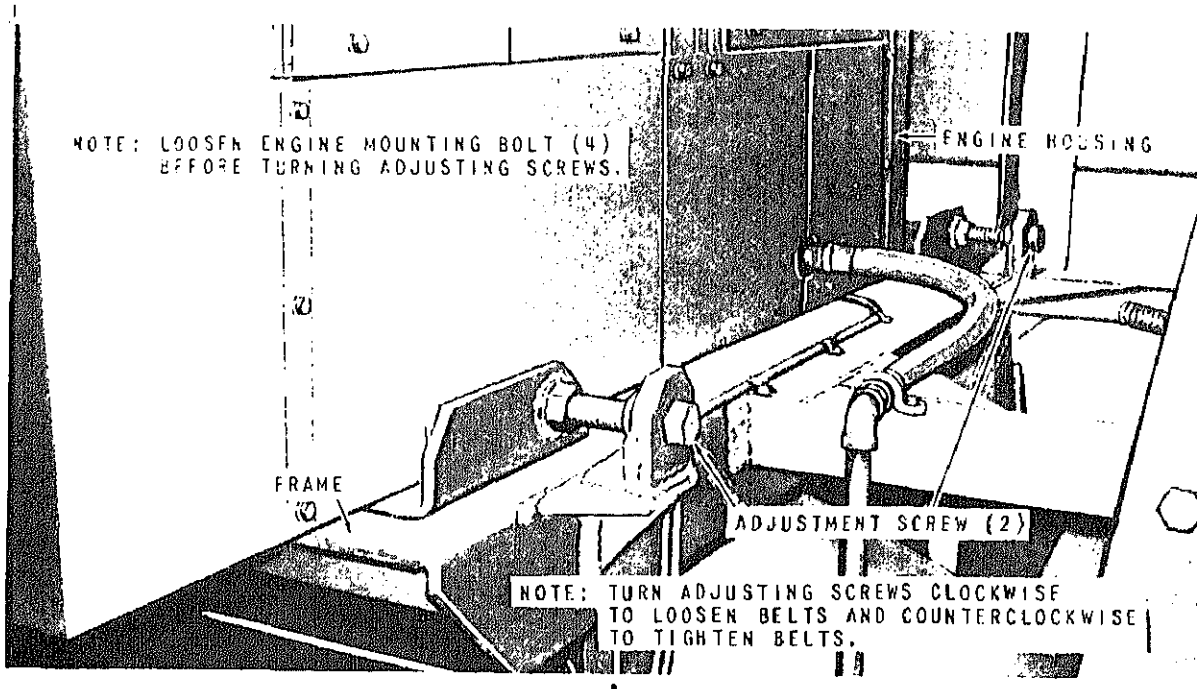
c. Installation. Install the tension reverse of instructions on figure 84.

d. Adjustment. For adjustment of sion spring, refer to TM 5-3820-205-1

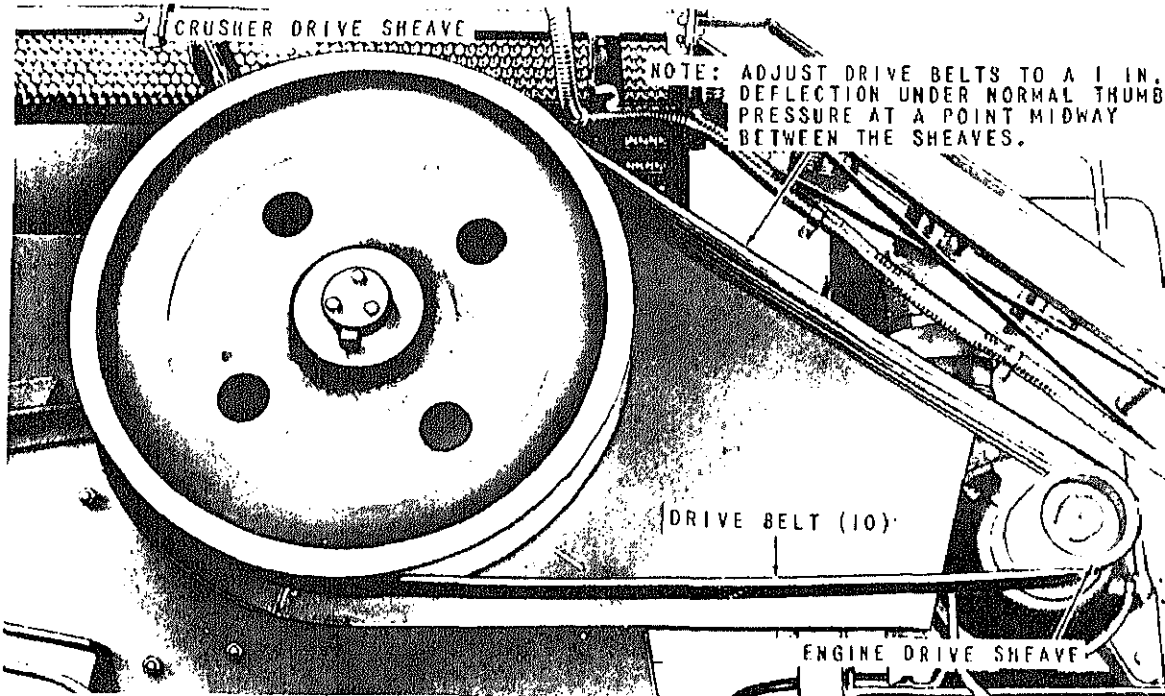


A




NOTE: LOOSEN ENGINE MOUNTING BOLT (4) BEFORE TURNING ADJUSTING SCREWS.
ENGINE HOUSING
FRAME
ADJUSTMENT SCREW (2)
NOTE: TURN ADJUSTING SCREWS CLOCKWISE TO LOOSEN BELTS AND COUNTERCLOCKWISE TO TIGHTEN BELTS.

A


CRUSHER DRIVE SHEAVE
NOTE: ADJUST DRIVE BELTS TO A 1 IN. DEFLECTION UNDER NORMAL THUMB PRESSURE AT A POINT MIDWAY BETWEEN THE SHEAVES.
DRIVE BELT (10)
ENGINE DRIVE SHEAVE

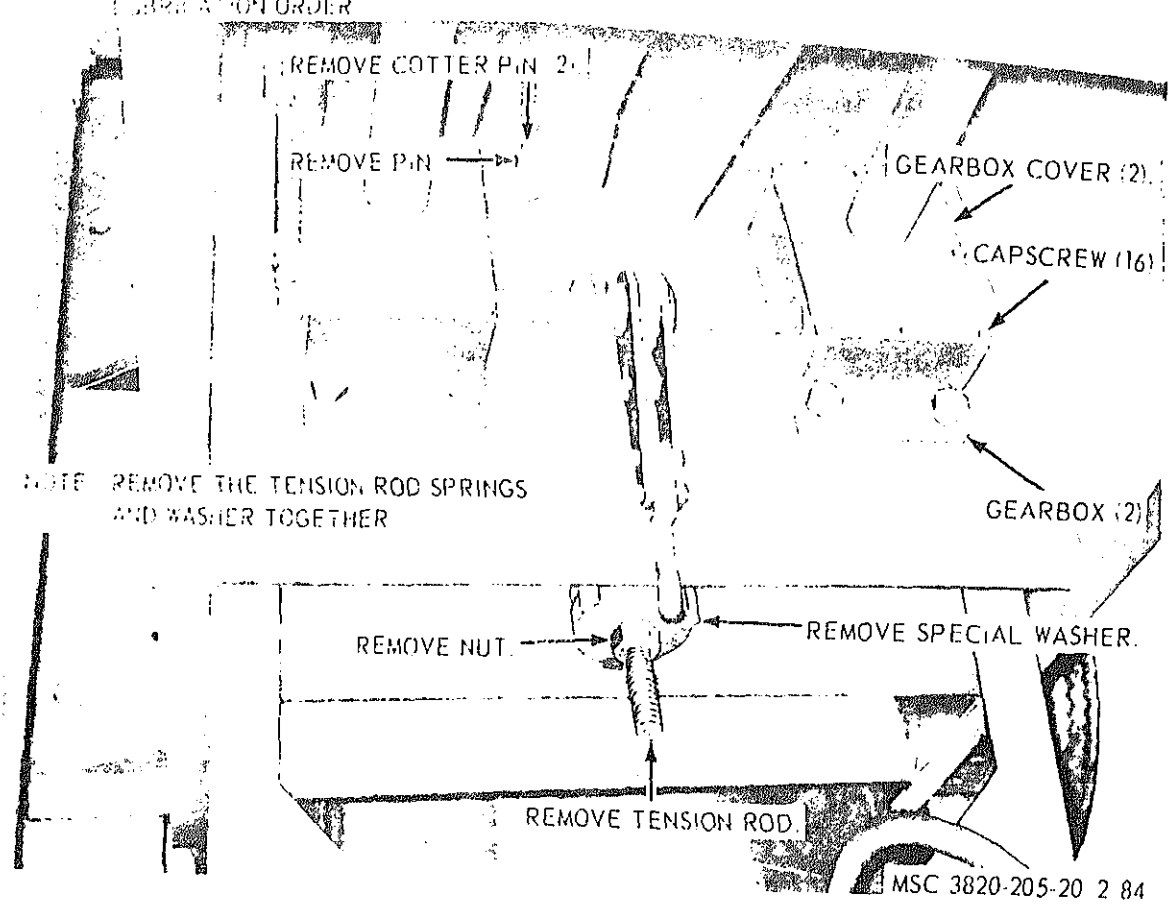


Figure 85. Tension spring and gear box covers, removal and installation.

Section VII. MAIN DISCHARGE CONVEYOR ASSEMBLY

157. General

The main discharge conveyor assembly receives the crusher rock from the crusher jaws, and may receive the material from the diverter gate for conveying out the rear of the jaw crusher. The main discharge conveyor consists of a conveyor belt, an electric motor, motor drive belts, reducer gears, drive pulleys, head and tail scraper assemblies, impact troughing and return rollers, head and tail shaft assemblies, and conveyor frame.

159. Main Discharge Conveyor Drive Gear Reducer and Sheave Assembly

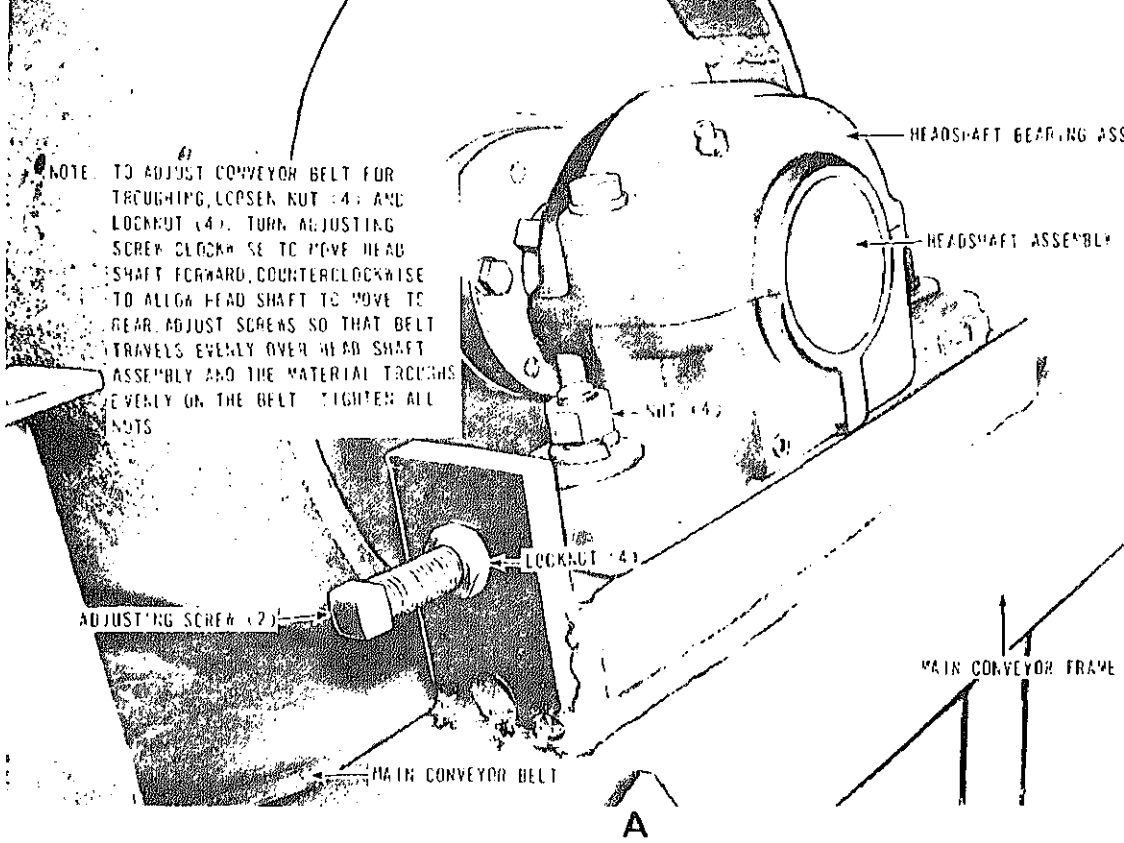
a. Removal.

(1) Remove the main discharge conveyor drive belts (par. 129).

(2) Remove the main discharge conveyor drive gear reducer and sheave assembly as instructed on figure 86.

(3) Remove drive sheave from gear reducer as instructed on figure 86.

b. Cleaning and Inspection. Clean and in-



A—Main conveyor belt troughing adjustment

Figure 85. Main conveyor belt, adjustment.

(2) Install drive gear reducer in reverse of instructions on figure 86.

(3) Install the main discharge conveyor drive belts (par. 129).

160. Head Belt Scraper Assembly

a. Removal. Remove the head belt scraper assembly as instructed on figure 87.

b. Disassembly. Disassemble the head belt scraper as illustrated on figure 88.

c. Cleaning, Inspection, and Repair. Clean

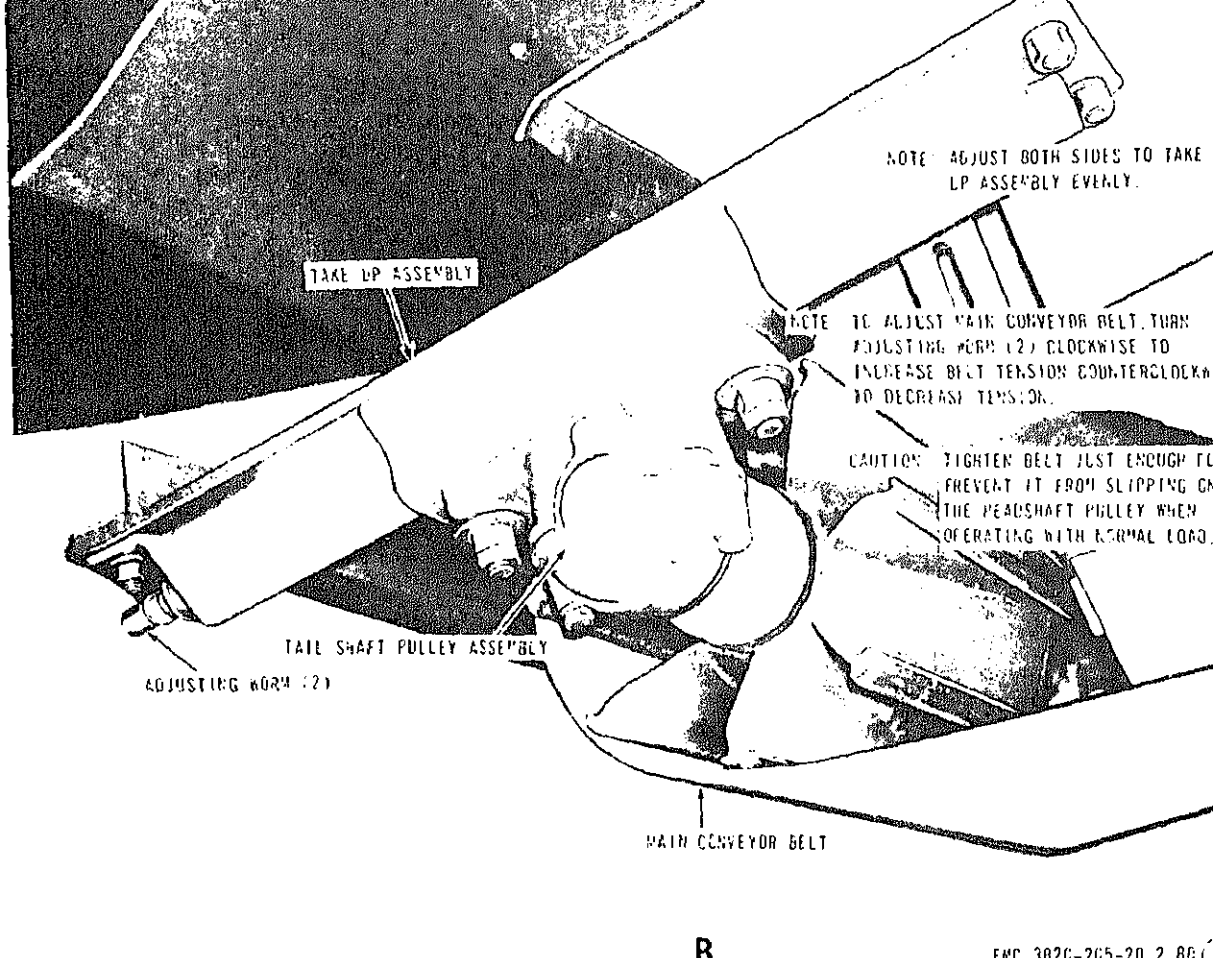
e. Installation. Install the head b assembly in reverse of instructions o

161. Tail Scraper Assembly

a. Removal. Remove the tail scra bly as instructed on figure 89.

b. Disassembly. Disassemble the t assembly as illustrated on figure 90.

c. Cleaning, Inspection, and Repa and inspect all parts. Repair or re fective or damaged part as required.



B—Main conveyor belt tension adjustment

Figure 85—Continued.

162. Impact Roller Assemblies

a. Removal. Remove the impact roller assemblies as instructed on figure 91.

b. Disassembly. Disassemble the impact roller assemblies as illustrated on figure 92.

c. Cleaning, Inspection, and Repair. Clean and inspect all parts for damage or defects. Repair or replace as necessary.

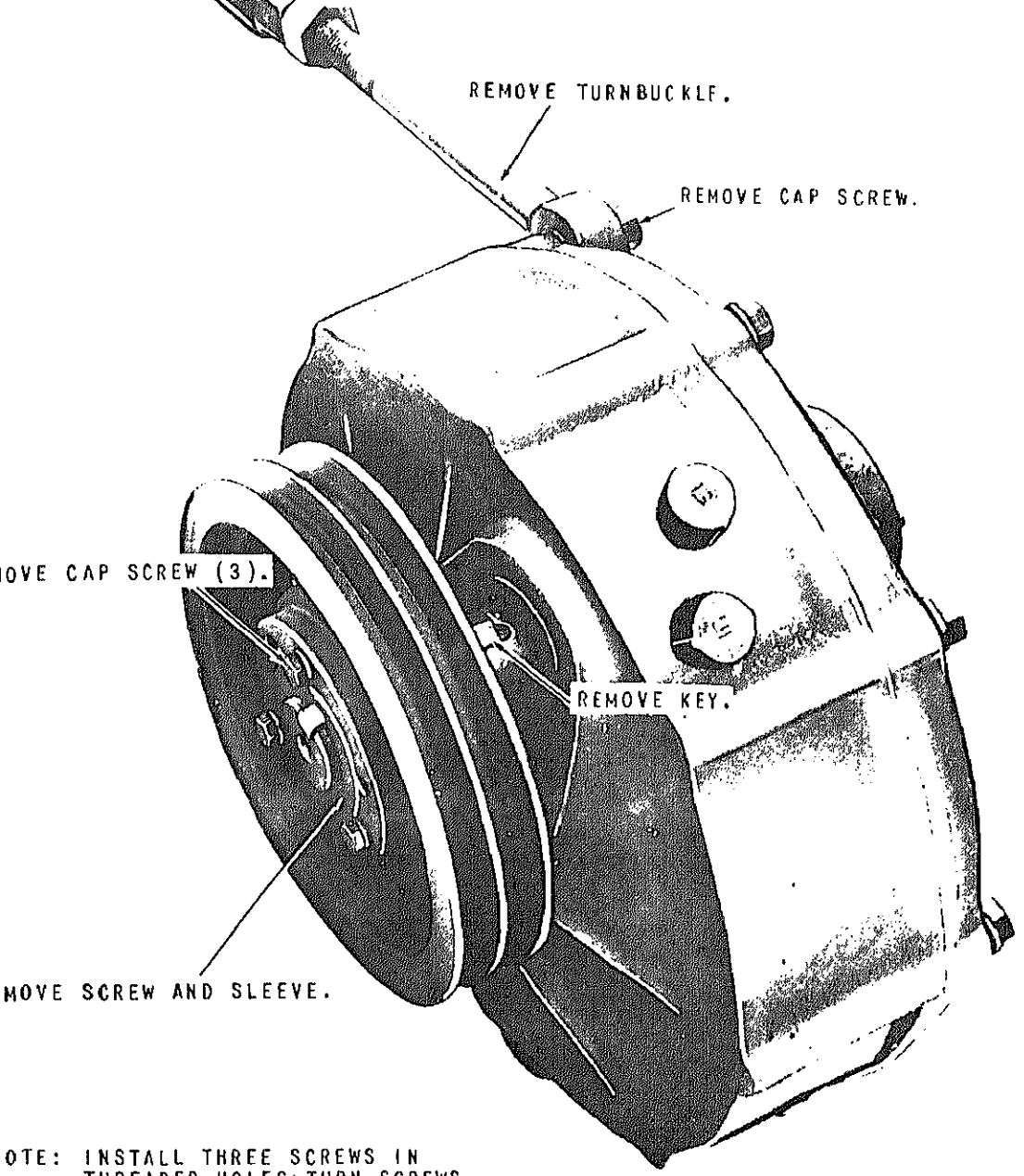
d. Reassembly. Reassemble the impact roller

b. Disassembly. Disassemble the troug roller assemblies as illustrated on figure 9

c. Cleaning, Inspection, and Repair. and inspect all parts. Repair or replac fective or damaged parts as necessary.

d. Reassembly. Reassemble the troug roller assemblies as illustrated on figure 9

e. Installation. Install the troughing assemblies in reverse of instructions on



OTE: INSTALL THREE SCREWS IN THREADED HOLES; TURN SCREWS IN TO REMOVE SHEAVE FROM SHAFT.

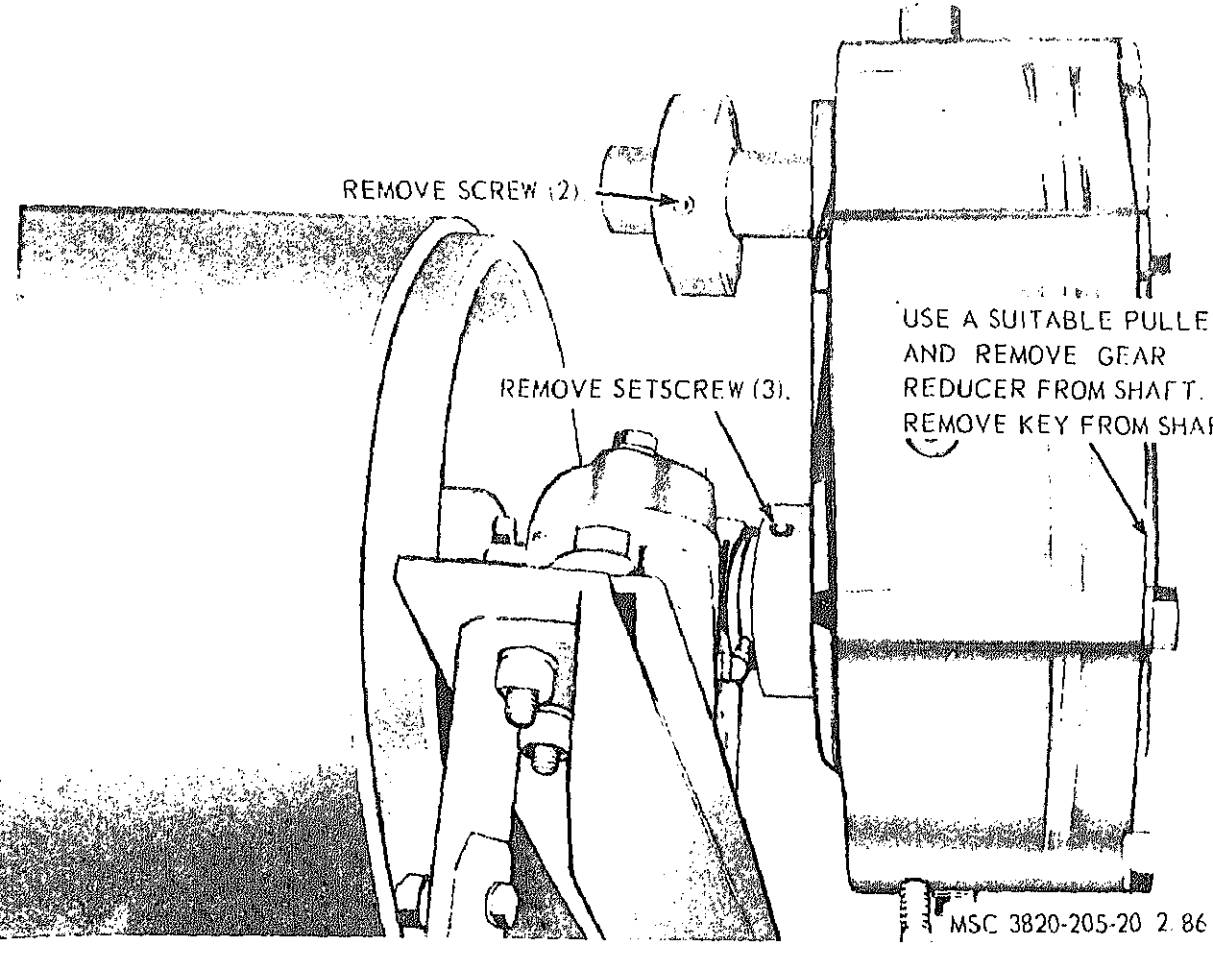


Figure 86—Continued.

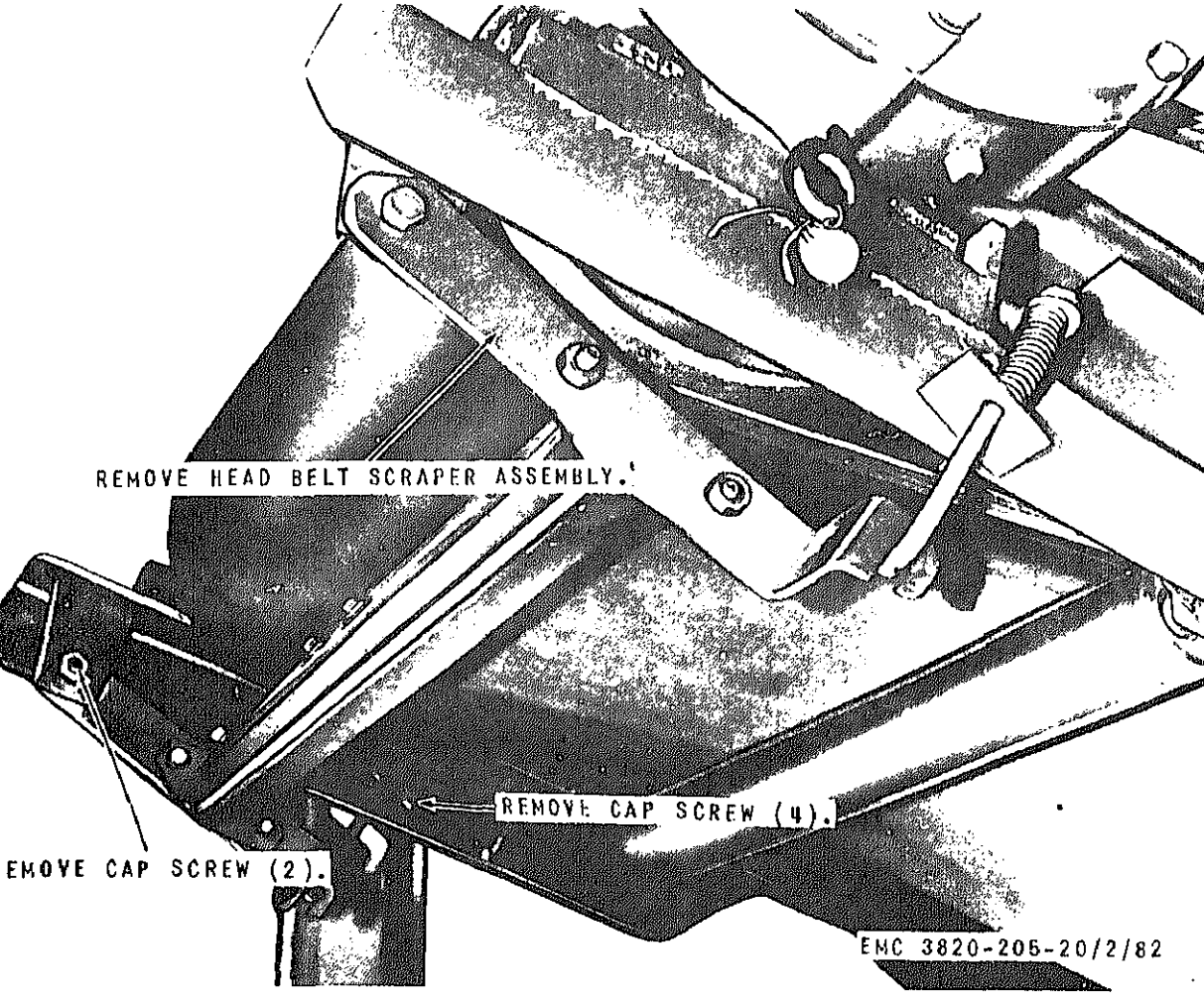


Figure 87. Head belt scraper assembly, removal and installation.

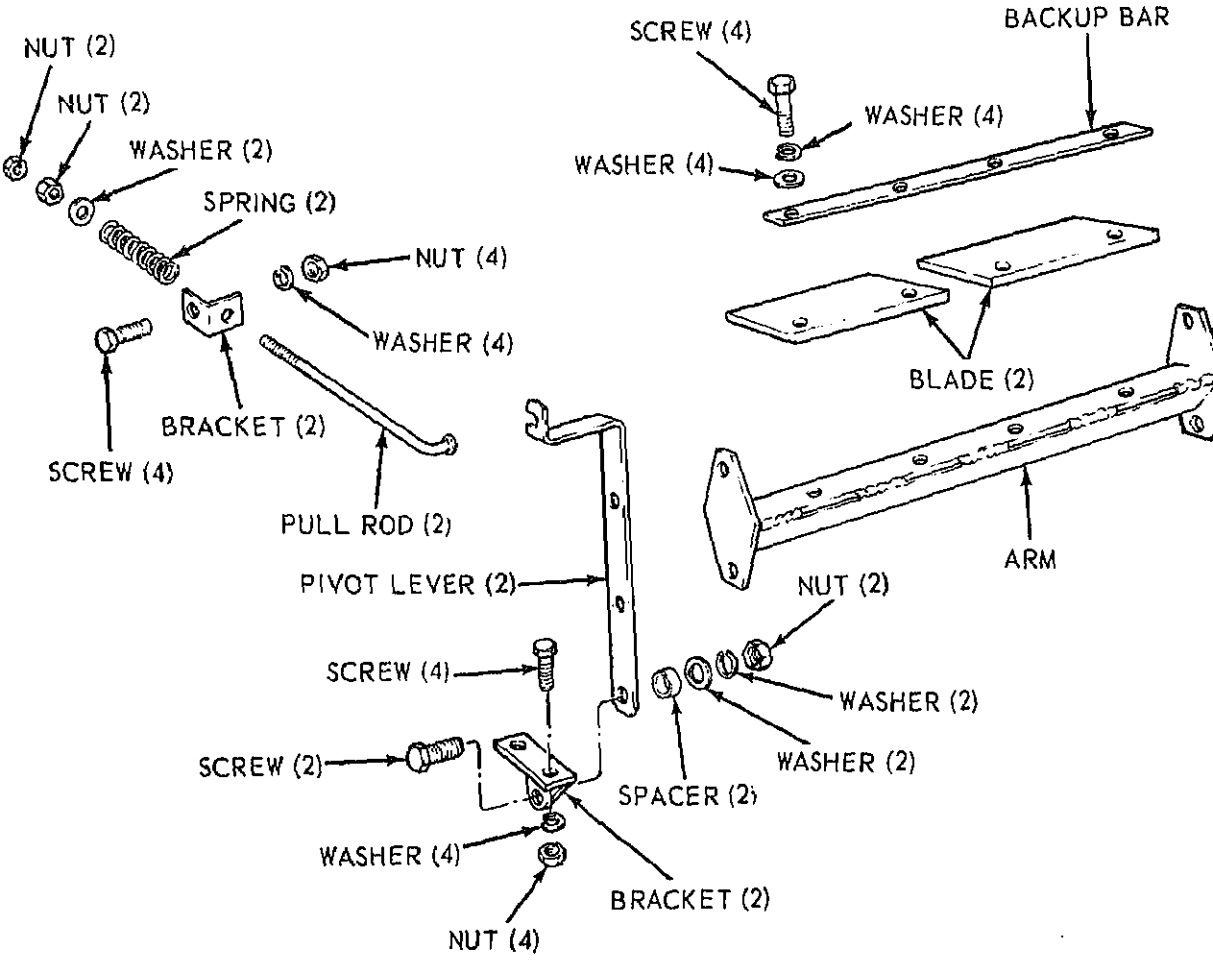


Figure 88. Head belt scraper assembly, exploded view.

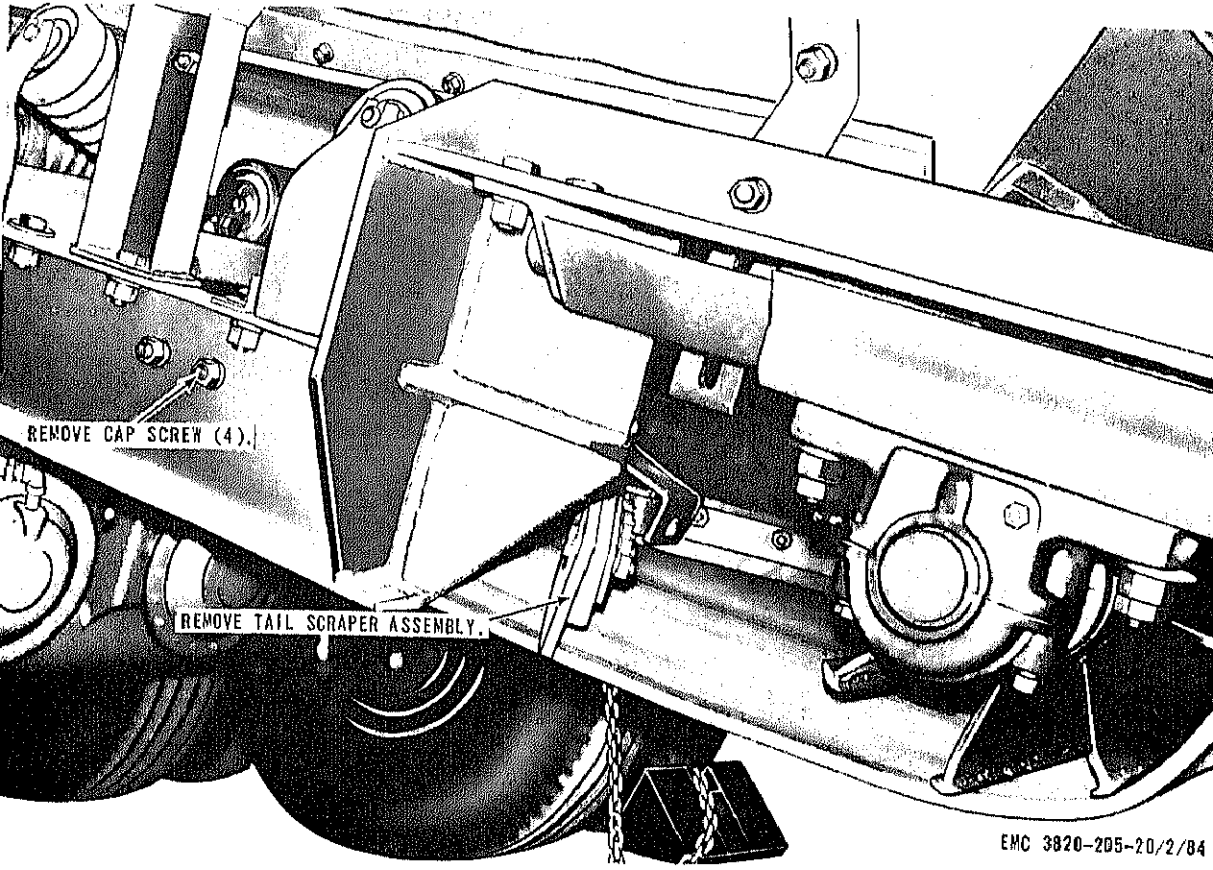


Figure 89. Tail scraper assembly, removal and installation.

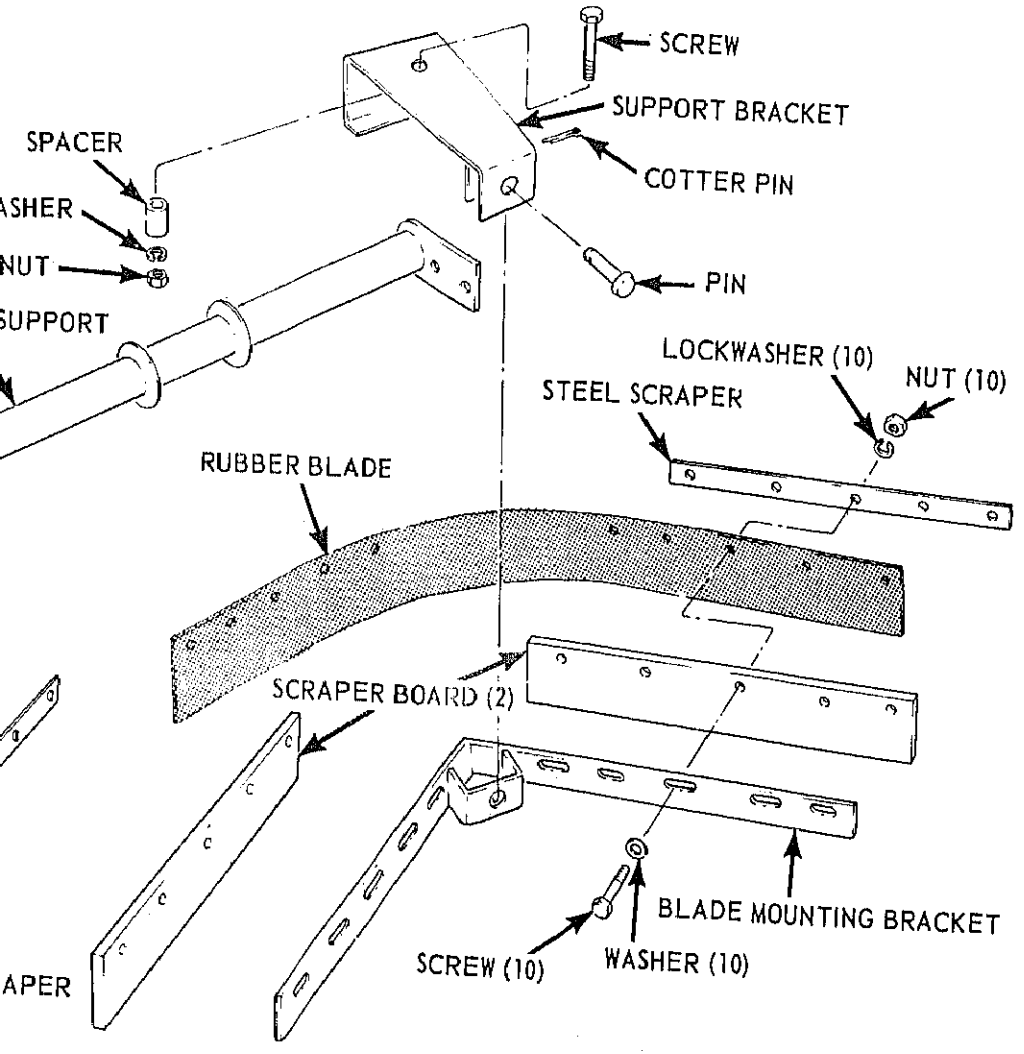


Figure 90. Tail scraper assembly, exploded view.

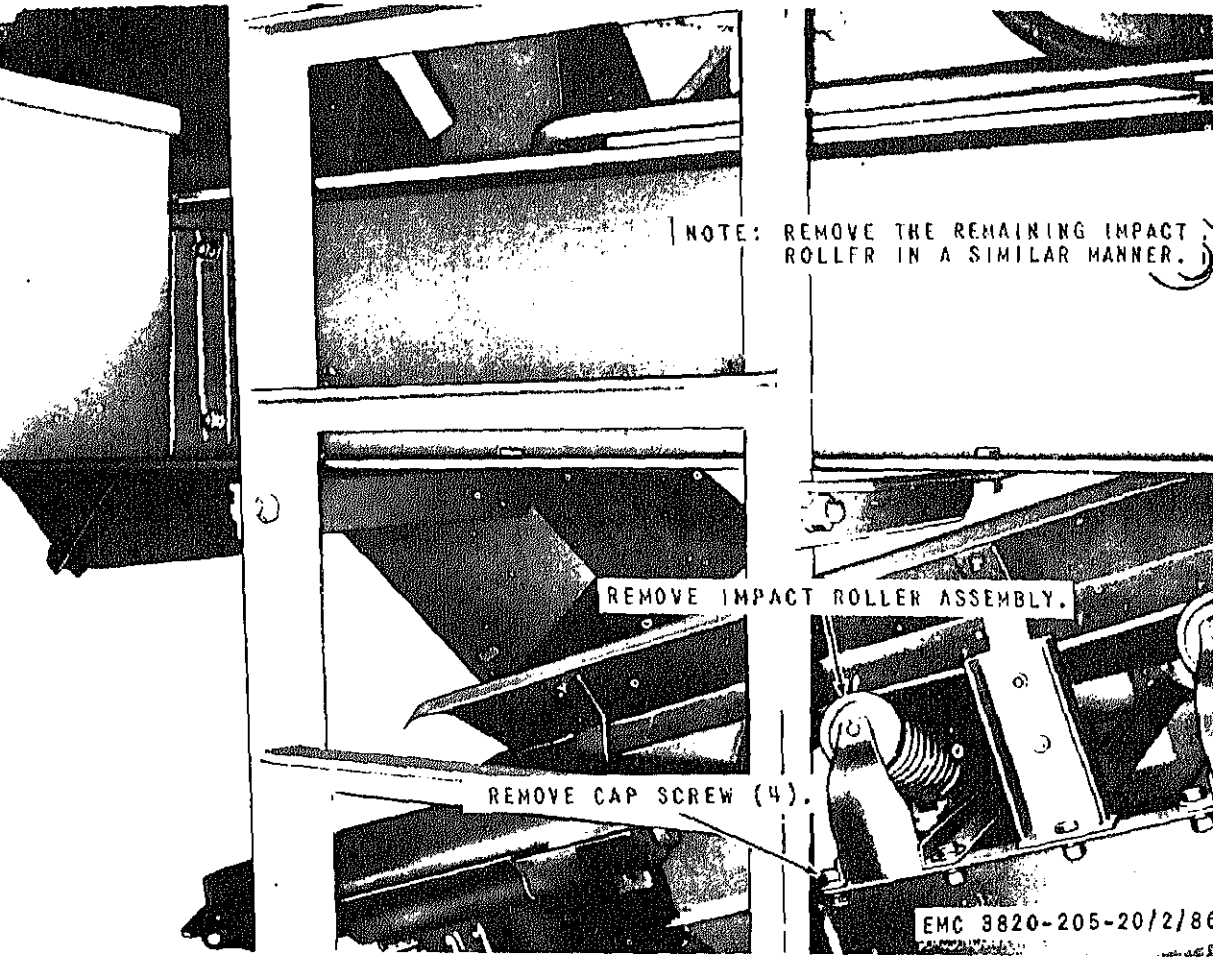


Figure 91. Impact roller assemblies, removal and installation.

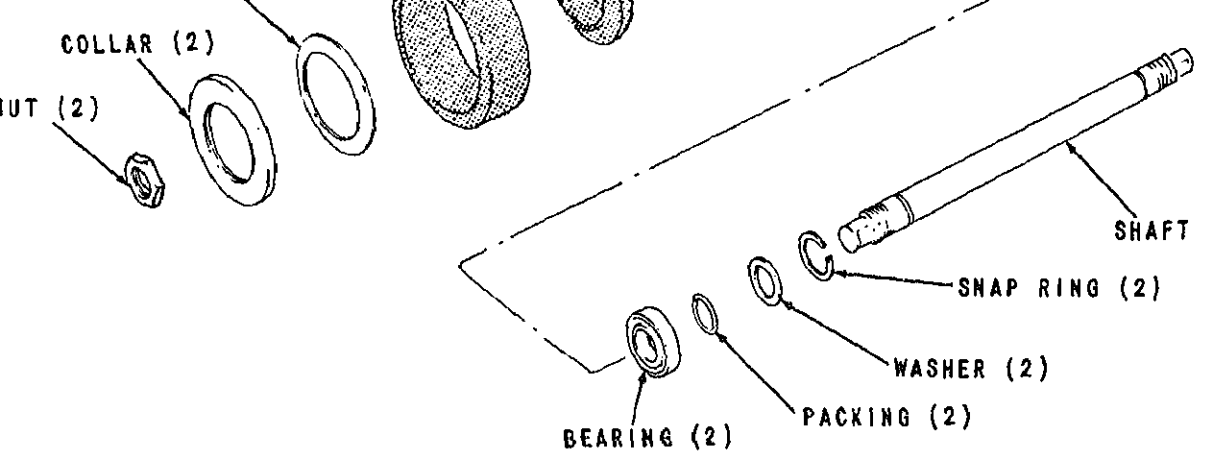
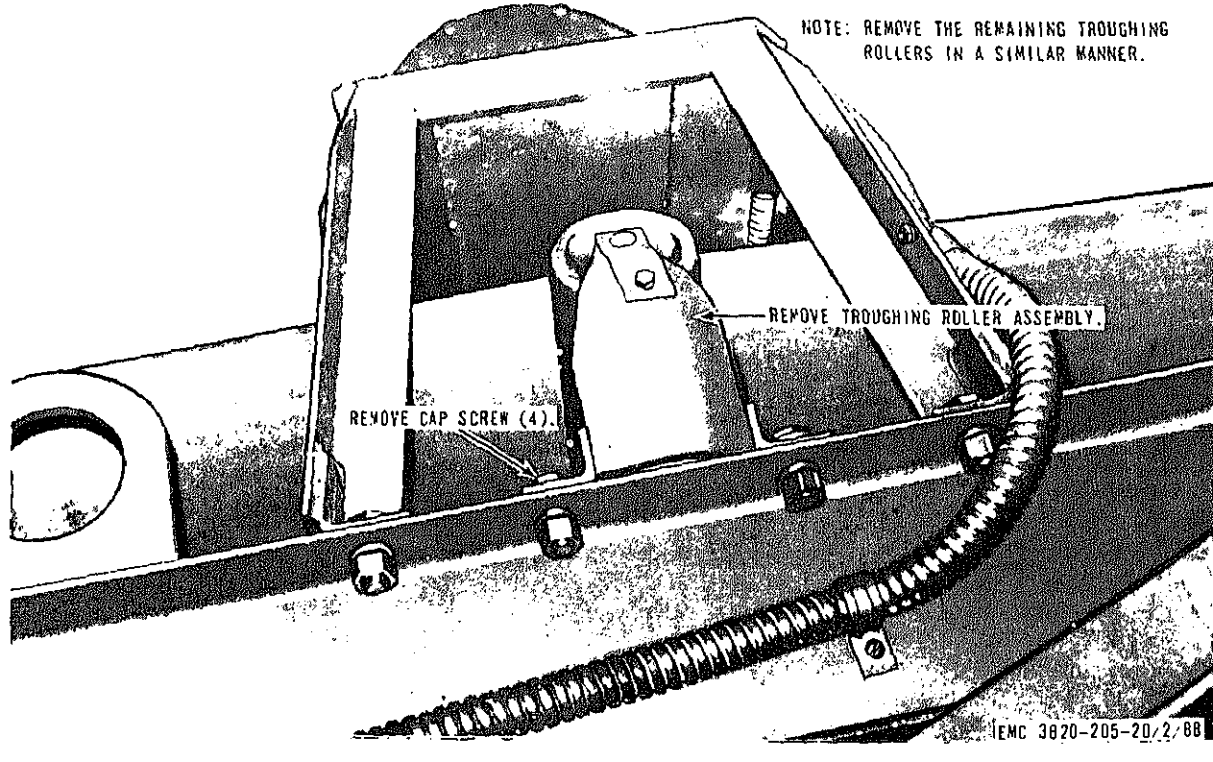


Figure 92. Impact roller assemblies, exploded view.



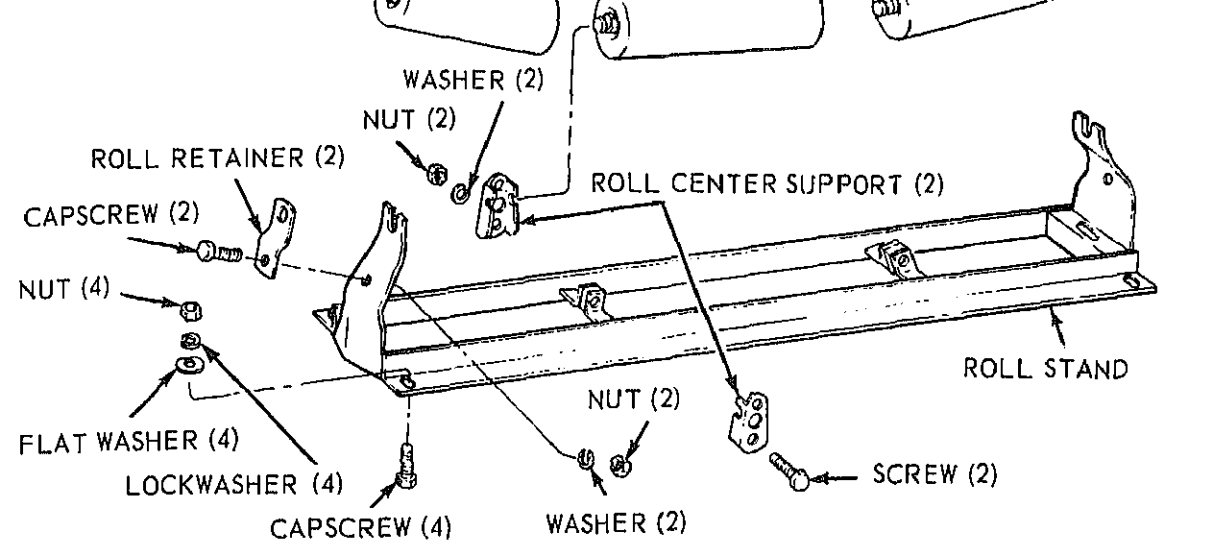
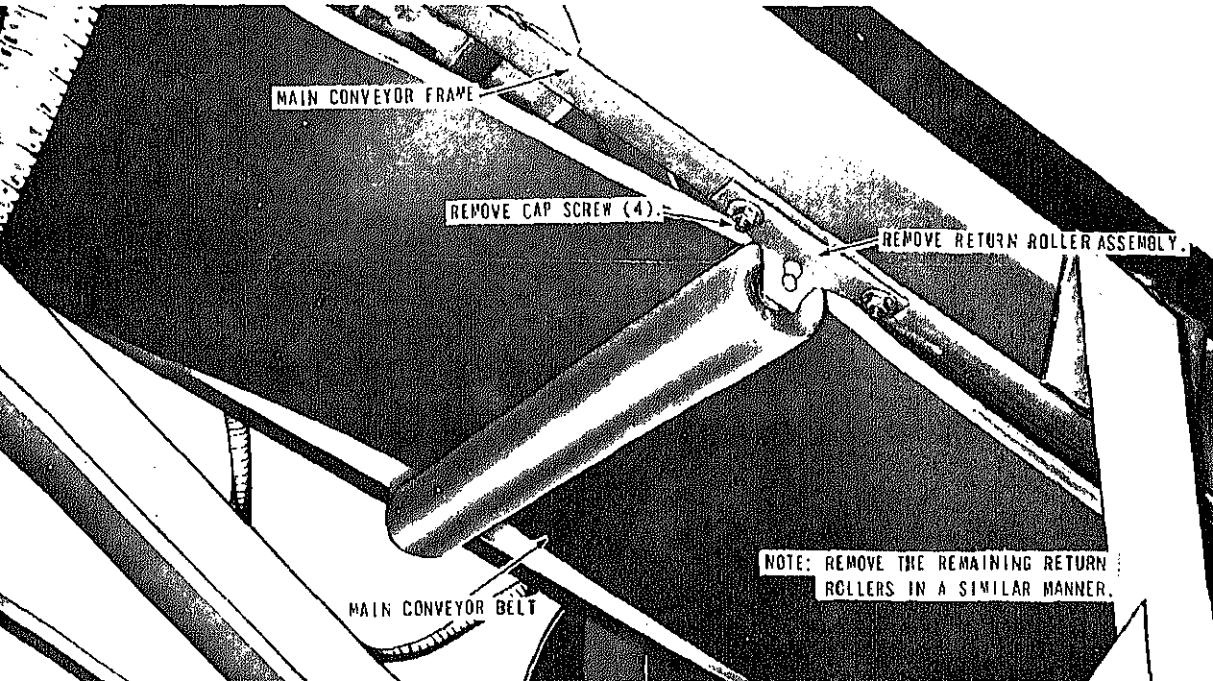


Figure 94. Troughing roller assemblies, exploded view.



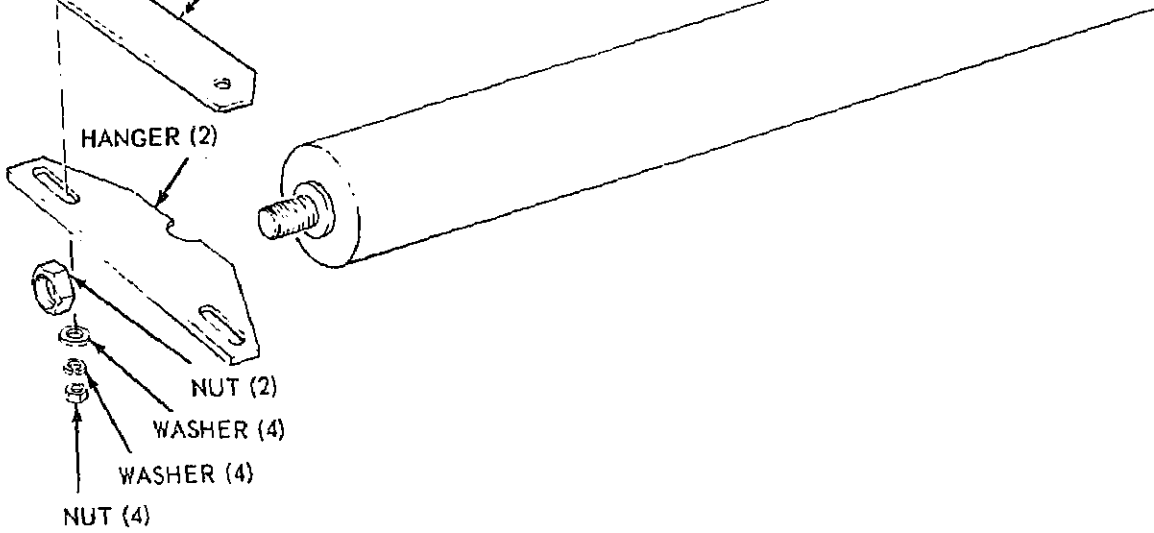


Figure 96. Return roller assembly, exploded view.

c. Cleaning, Inspection, and Repair. Clean and inspect all parts. Repair or replace defective or damaged parts as necessary.

d. Reassembly. Reassemble the retu assembly as illustrated on figure 96.

e. Installation. Install the return r sembly in reverse of instructions on figu

Section VIII. FRAME ASSEMBLY

165. General

The frame consists of the platforms, ladders, pintle hook and bracket, leveling jacks and supports, power cable and reel assembly, and toolbox.

166. Leveling Jacks and Supports

a. Removal. Remove the leveling jacks and supports as instructed on figure 97.

b. Cleaning and Inspection. Clean and inspect all parts. Replace all damaged or de-

167. Pintel Hook and Bracket

a. Removal. Remove the pintle h bracket as instructed on figure 98.

b. Disassembly. Disassemble the pin as illustrated on figure 99.

c. Cleaning, Inspection, and Repair. and inspect all parts. Replace or repa aged or defective parts as necessary.

d. Reassembly. Reassemble the pin

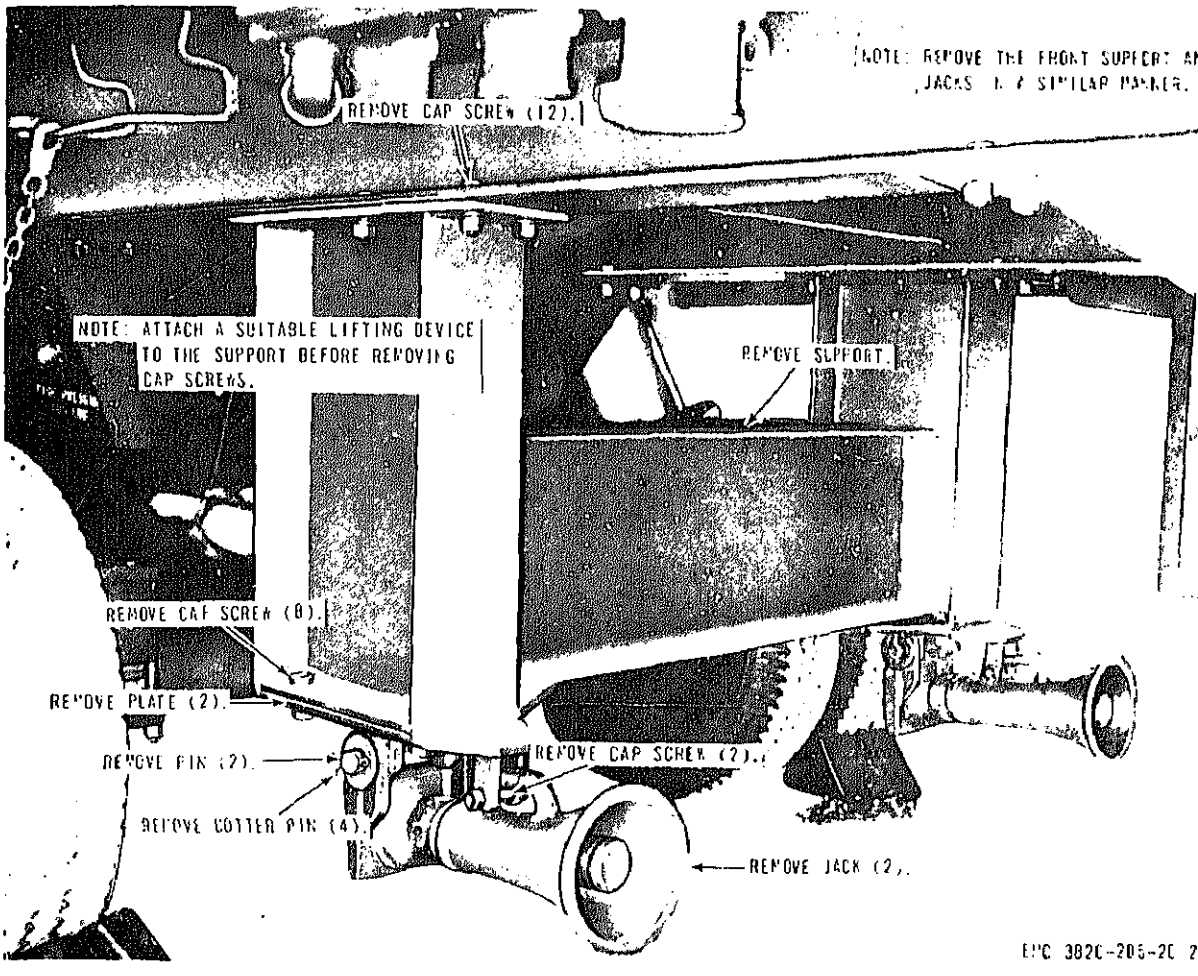
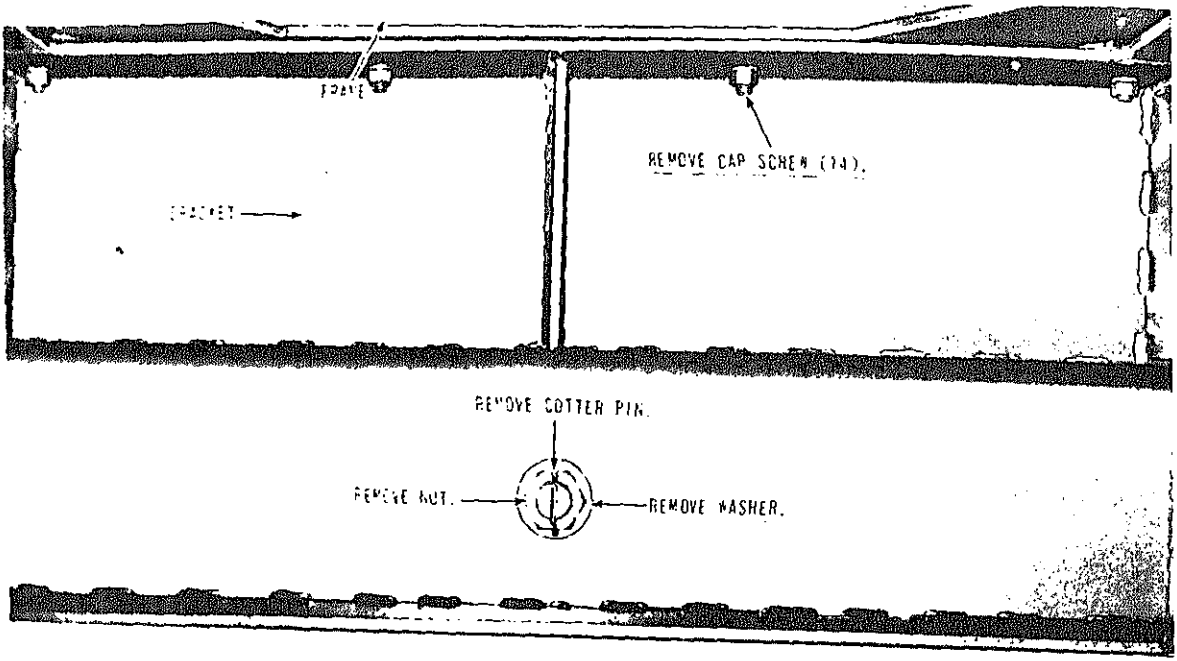
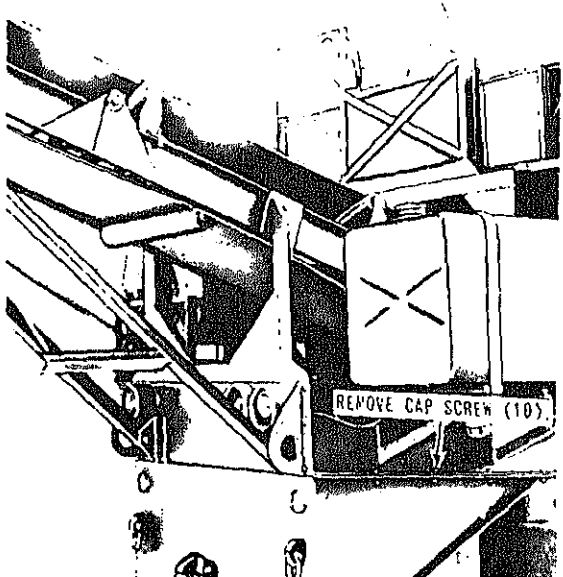


Figure 97. Leveling jacks and support, removal and installation.


REMOVE CAP SCREW (14).
REMOVE COTTER PIN.
REMOVE NUT.
REMOVE WASHER.

A


REMOVE CAP SCREW (10).

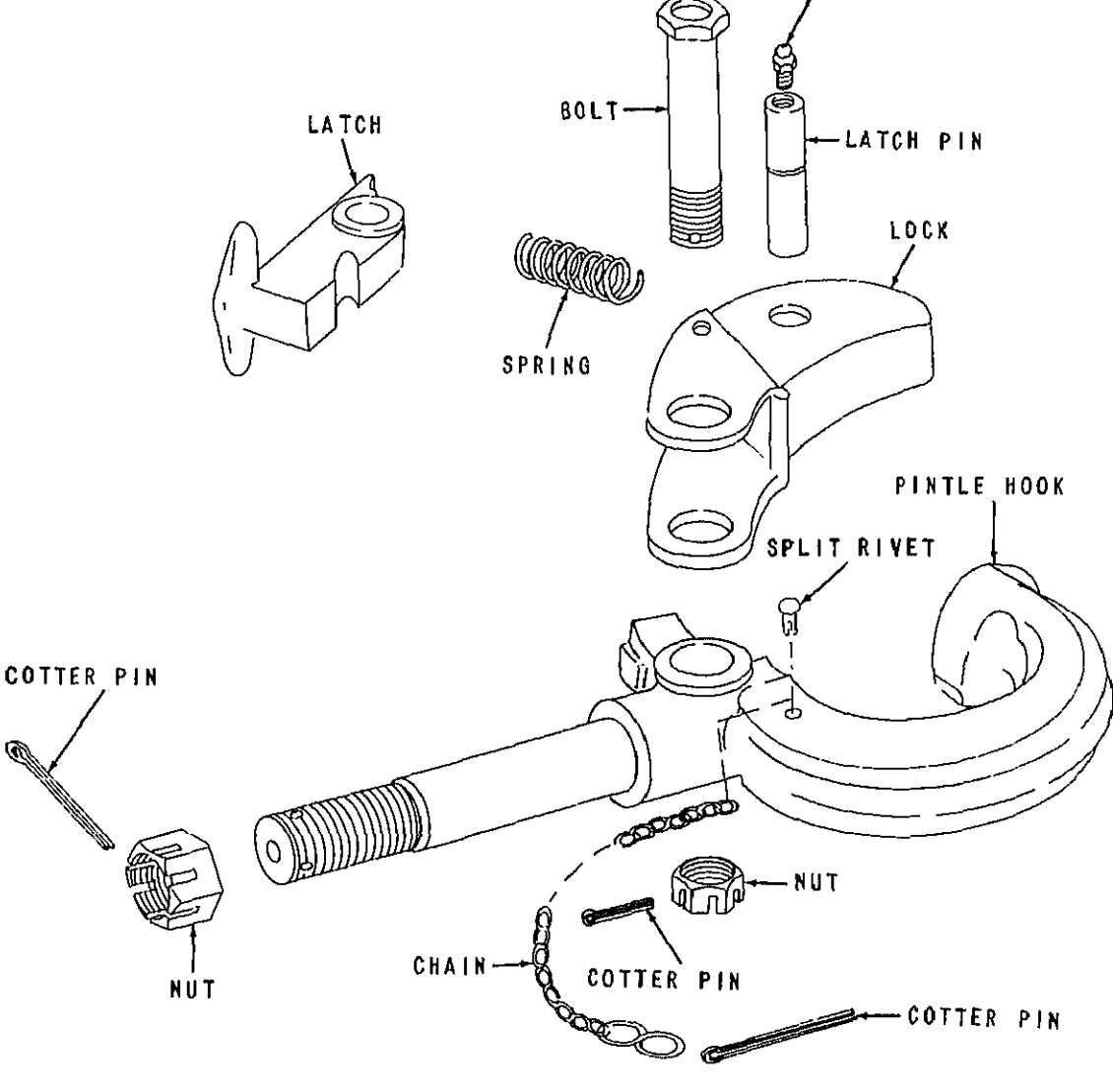


Figure 99. Pintle hook, exploded view.

168. Toolbox

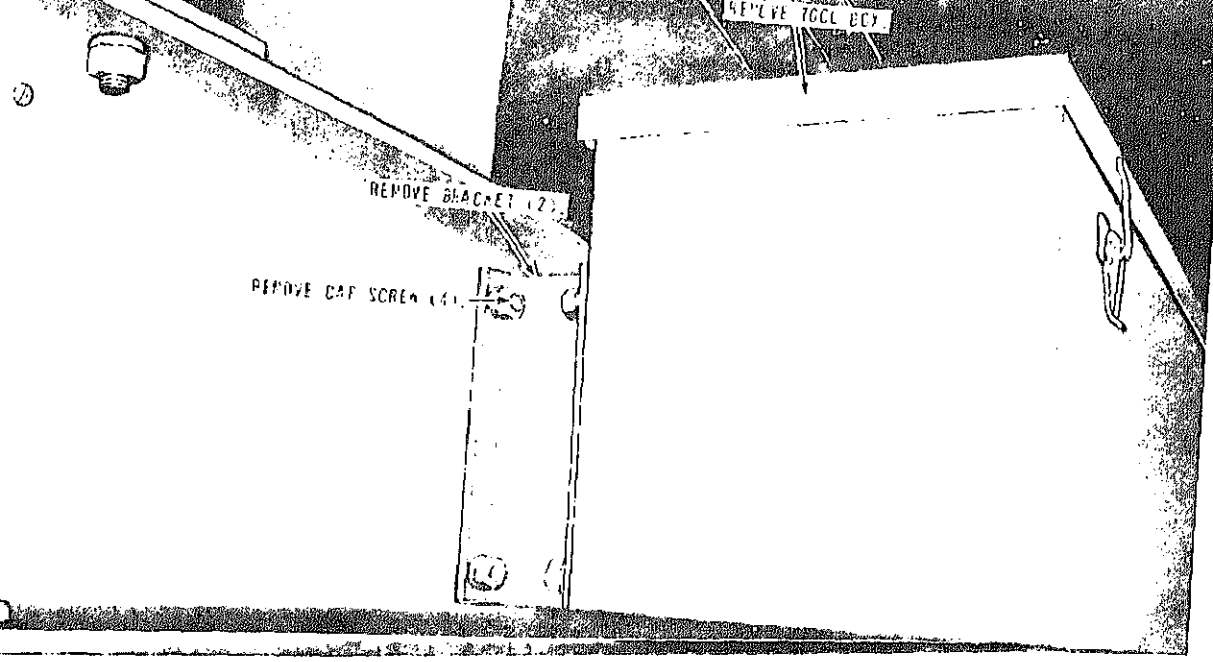
a. Removal. Remove the toolbox as instructed on figure 100.

b. Cleaning and Inspection. Clean and in-

169. Power Cable Reel Assembly

a. Removal.

(1) Remove clearance lights fro
power cable reel mounting b



EIC 3820-215-7a 2 95

Figure 100. Toolbox, removal and installation.

(3) Remove the power cable reel assembly as instructed on figure 101.

Disassembly. Disassemble the power cable assembly as illustrated on figure 102.

Cleaning, Inspection, and Repair. Clean inspect all parts. Repair or replace all ged or defective parts.

Reassembly. Reassemble the power cable ssembly as illustrated on figure 102.

nstallation.

1) Install the power cable reel assembly in reverse of instructions on figure 101.

2) Install the electrical conduit on the power cable reel mounting bracket (par. 125).

170. Ladders and Platforms

a. Removal.

(1) Disconnect the electric power supply (TM 5-3820-205-10 2) before removing the ladders or platforms.

(2) Remove the ladders and platforms as instructed on figure 103.

b. Cleaning and Inspection. Clean and inspect all parts. Replace all damaged or defective parts.

c. Installation.

(1) Install the platforms and ladders in reverse of instructions on figure

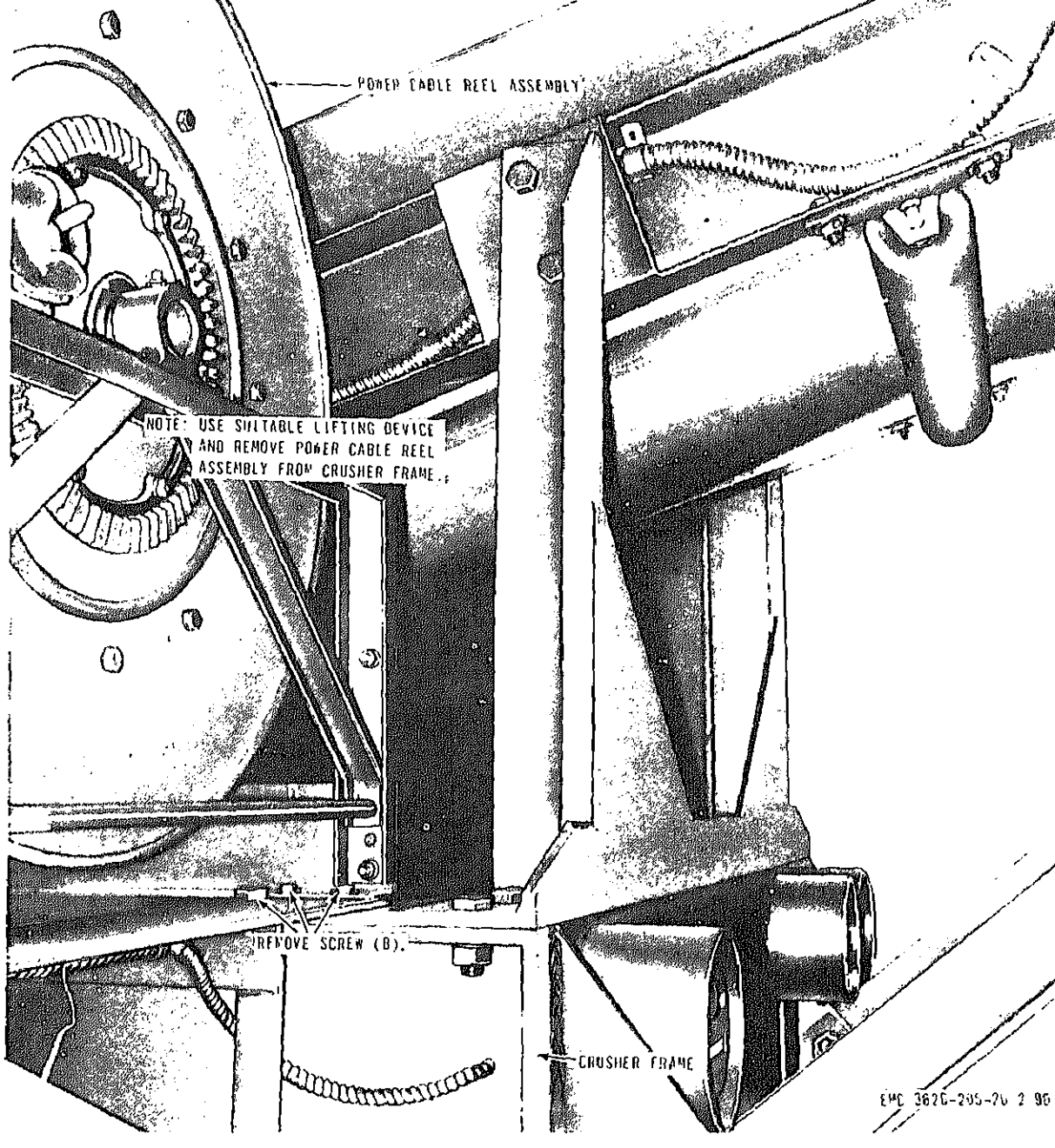


Figure 101. Power cable reel assembly, removal and installation.

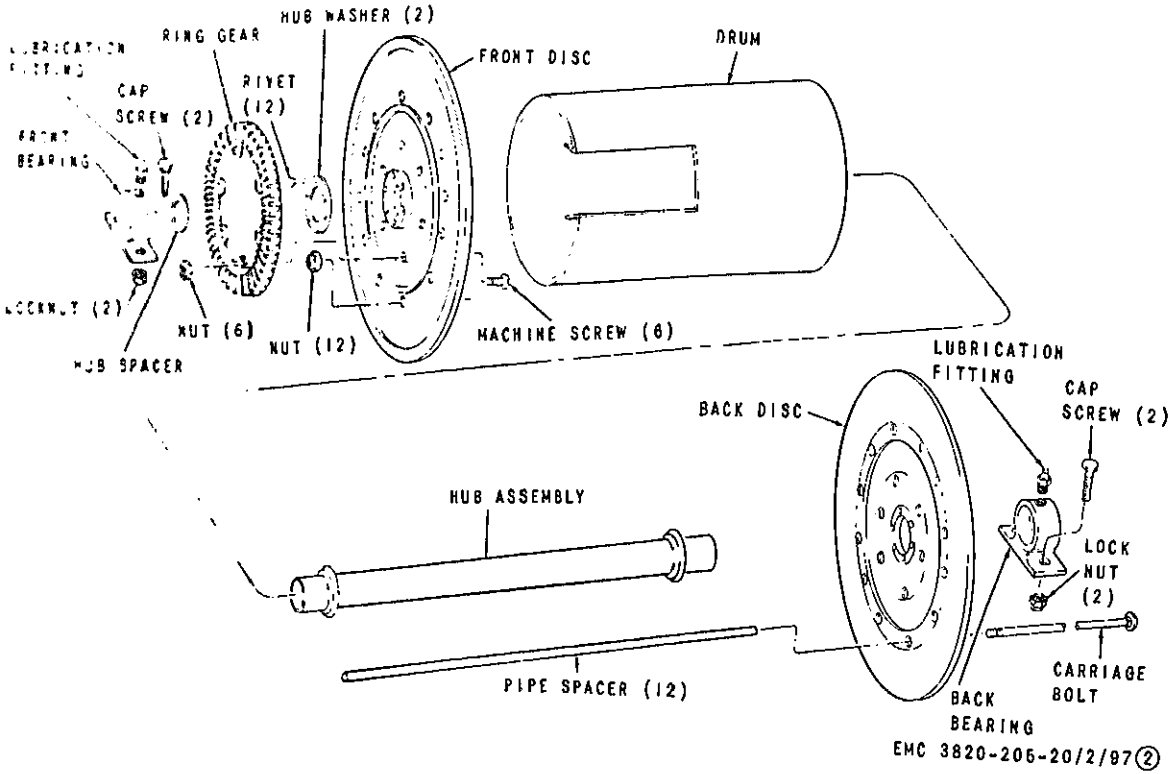
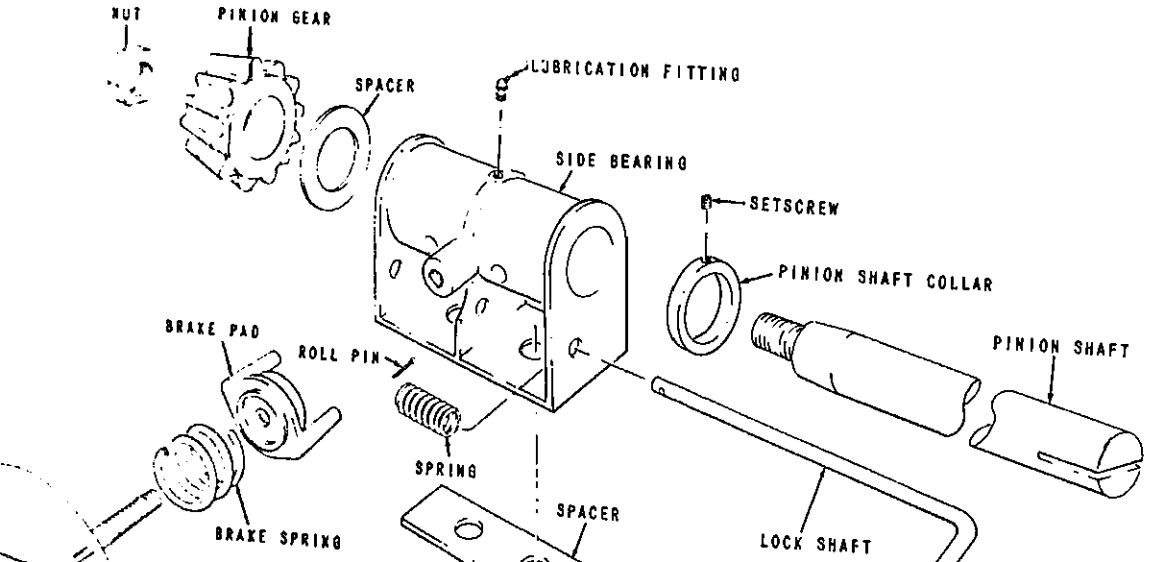
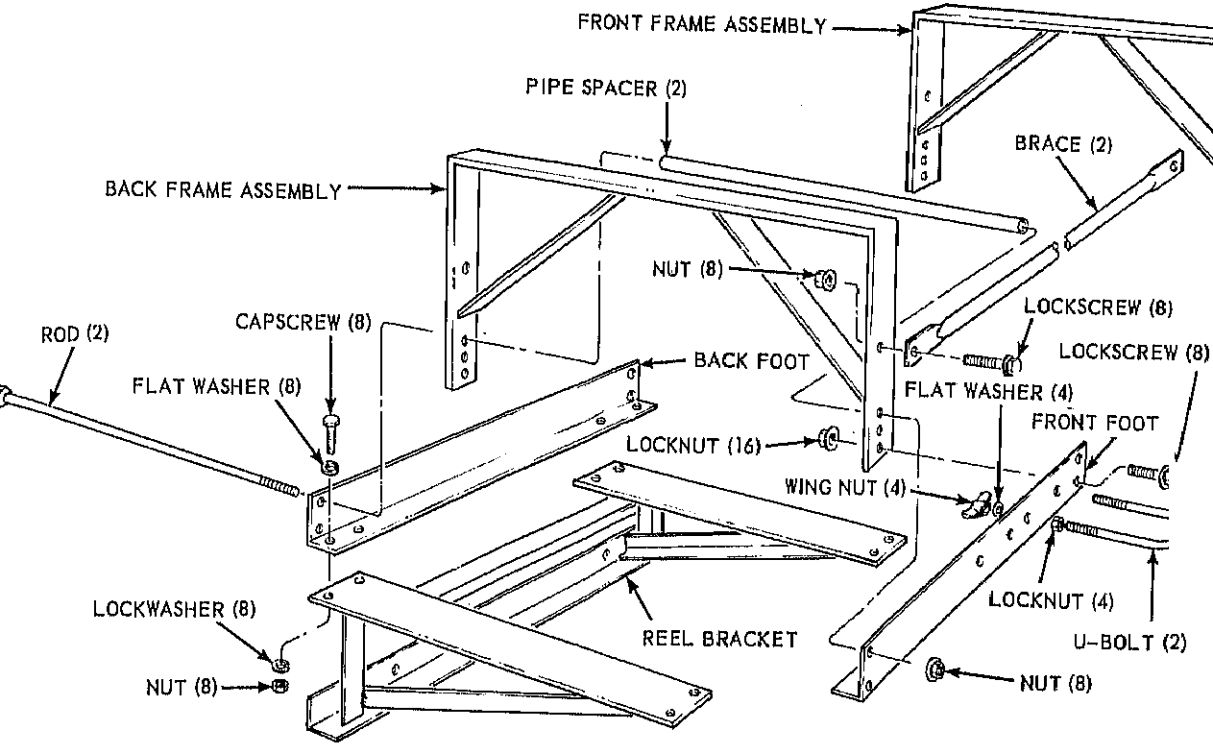


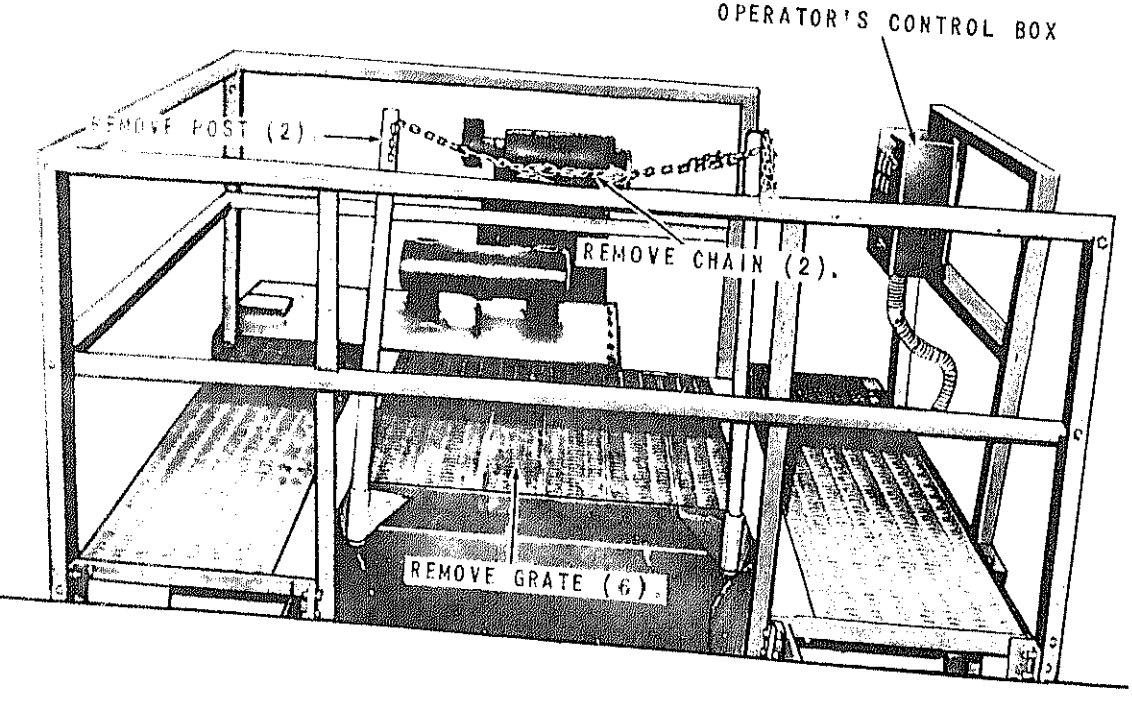
Figure 102. Power cable reel assembly, exploded view.





MSC 3820-205-20/2/102

NOTE: REMOVE OPERATOR'S CONTROL BOX FROM THE RAILING.

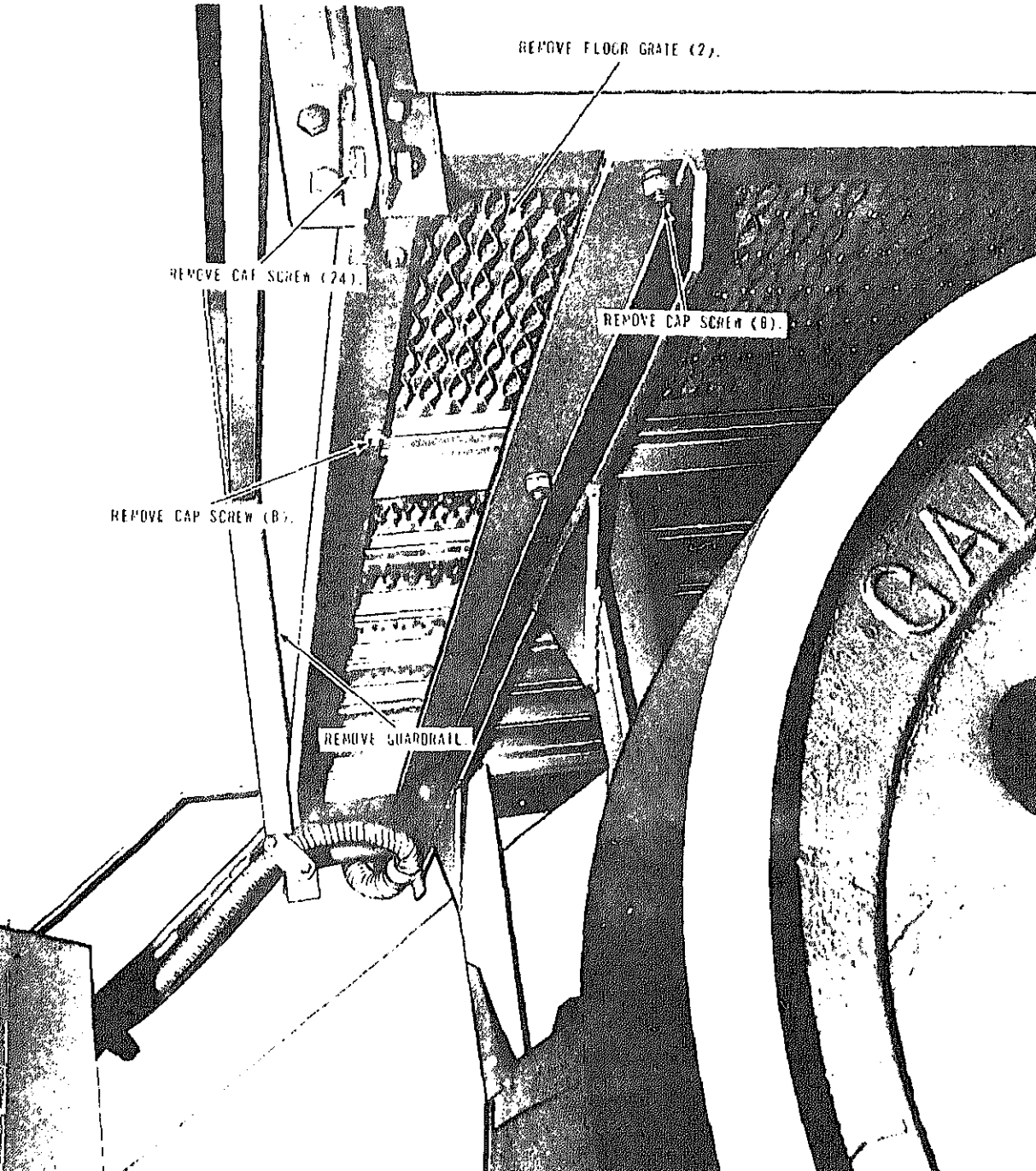


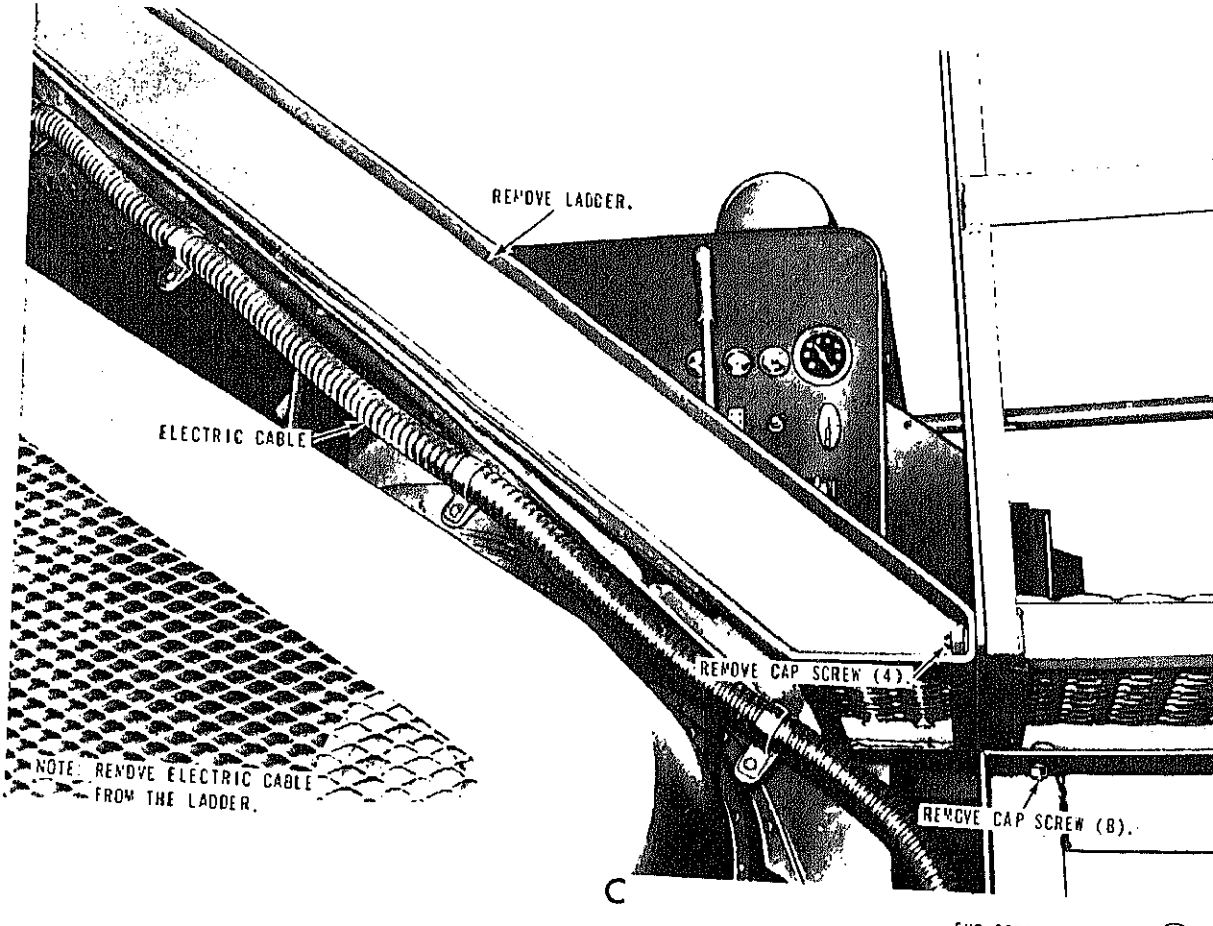
A

FMC 3820-205-20/2/98(1)

A—Upper platform grates and guard rails installed view

Figure 103. Ladders and platforms, removal and installation.

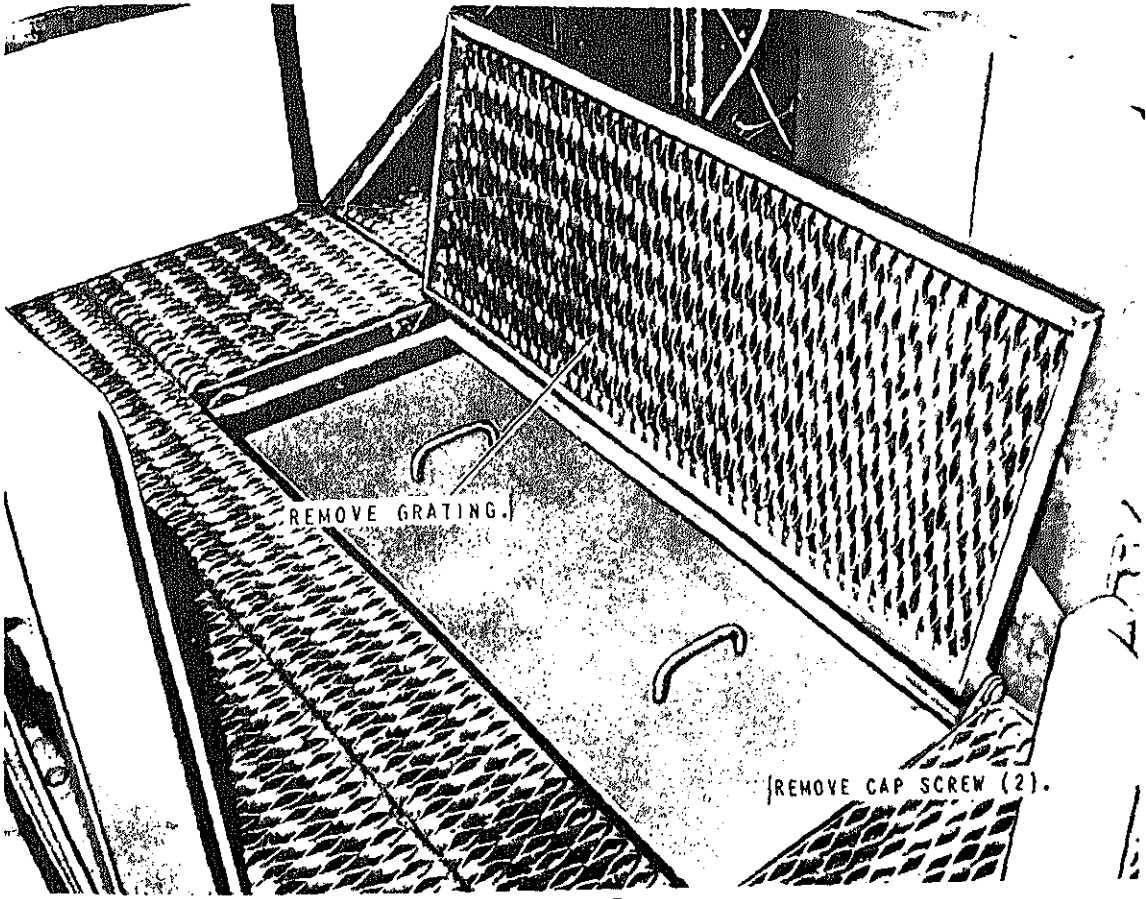

REMOVE FLOOR GRATE (2).
REMOVE CAP SCREW (24).
REMOVE CAP SCREW (8).
REMOVE CAP SCREW (8).
REMOVE GUARDRAIL.



EMC 3820-205-20 2 96 (3)

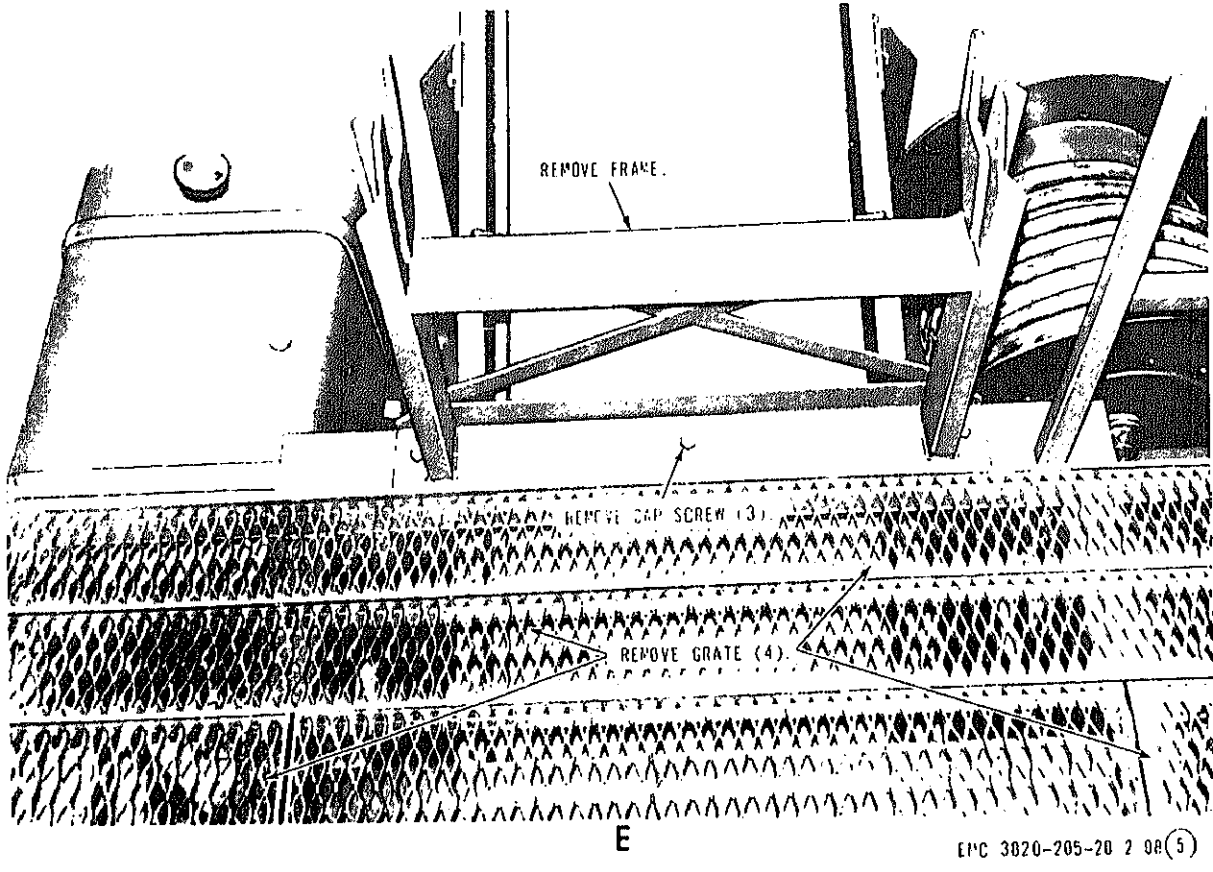
C—Intermediate ladder installed view

Figure 103—Continued.



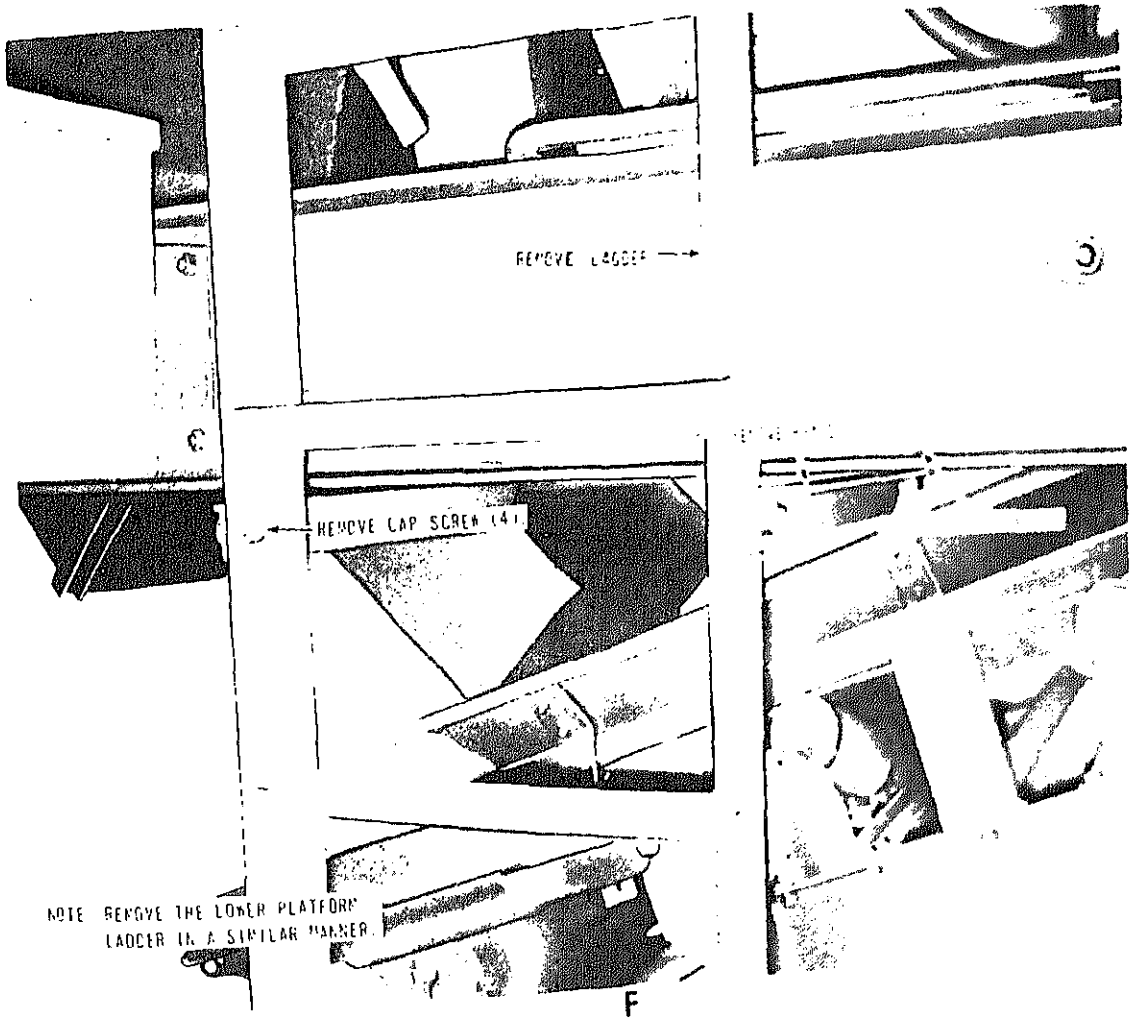
D—Battery box grating cover installed view

Figure 105—Continued.



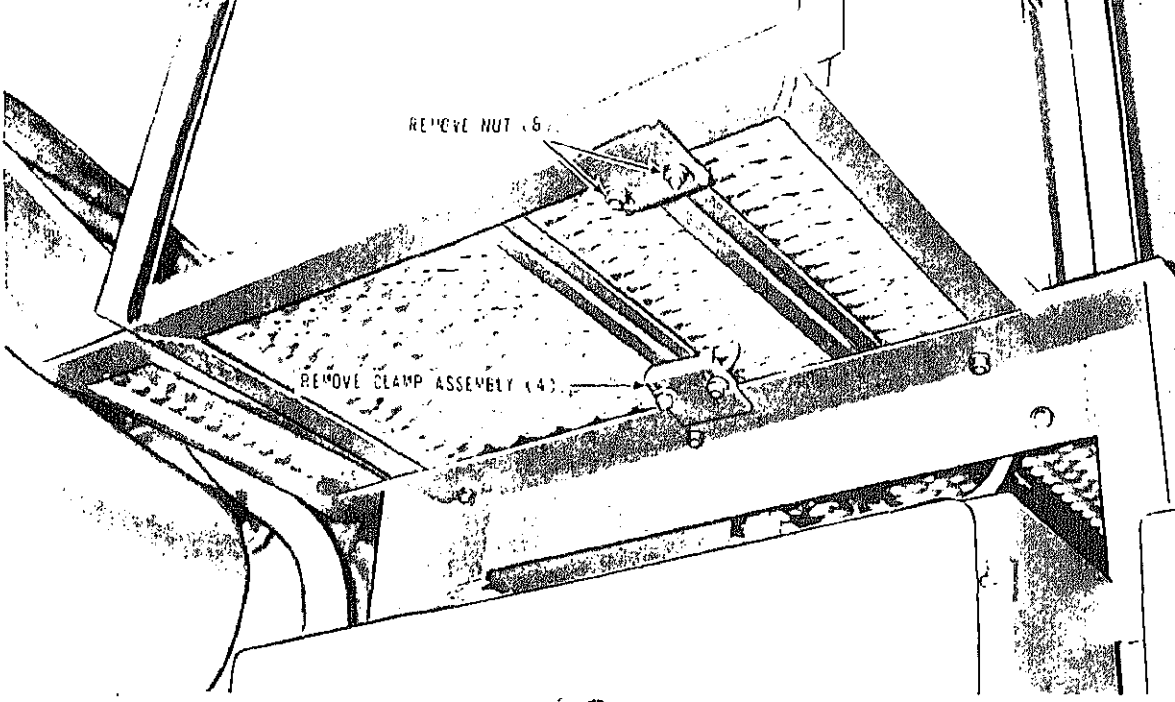
E -Conveyor transport bracket and lower platform grating installed view

Figure 108—Continued.



F--Upper platform ladder

Figure 103—Continued.



G—Lower platform ladder installed view

Figure 103—Continued.

Section IX. REAR WHEELS, TIRES, AND BRAKE ASSEMBLY

171. General

The rear wheels, tires, and brake assembly consists of wheels, tires, hub, slack adjusters, and brake assembly. The wheels are dual-type and separated by a spacer. The assembly is secured to the hub and brakedrum.

172. Rear Wheels and Tires

a. Removal. Remove the rear wheels and tires in the same manner as the dolly wheels and tires (par. 115*a*).

b. Cleaning, Inspection, and Repair. Clean and inspect, replace or repair the tires and wheels in the same manner as the dolly wheels

173. Rear Wheel Hub Assembly and Brakedrum

a. Removal.

(1) Remove the rear wheel assembly 172).

(2) Remove and disassemble the bearings, hub, and brakedrum a bly (par. 116).

b. Cleaning and Inspection. Clean a spect all parts. Replace all damaged or tive parts. Lubricate wheel bearing (pa

c. Installation.

(1) Reassemble and install the

chamber (par. 139).

(2) Remove slack adjuster as instructed on figure 104.

b. Cleaning and Inspection. Clean and inspect all parts. Replace all damaged or defective parts.

c. Installation.

(1) Install the slack adjuster in reverse of instructions on figure 104.

(2) Connect linkage to air brake chamber (par. 139).

d. Adjustment. Adjust the slack adjusters as instructed on figure 104.

(par. 116).

(2) Remove the brake ... structed on figure 105

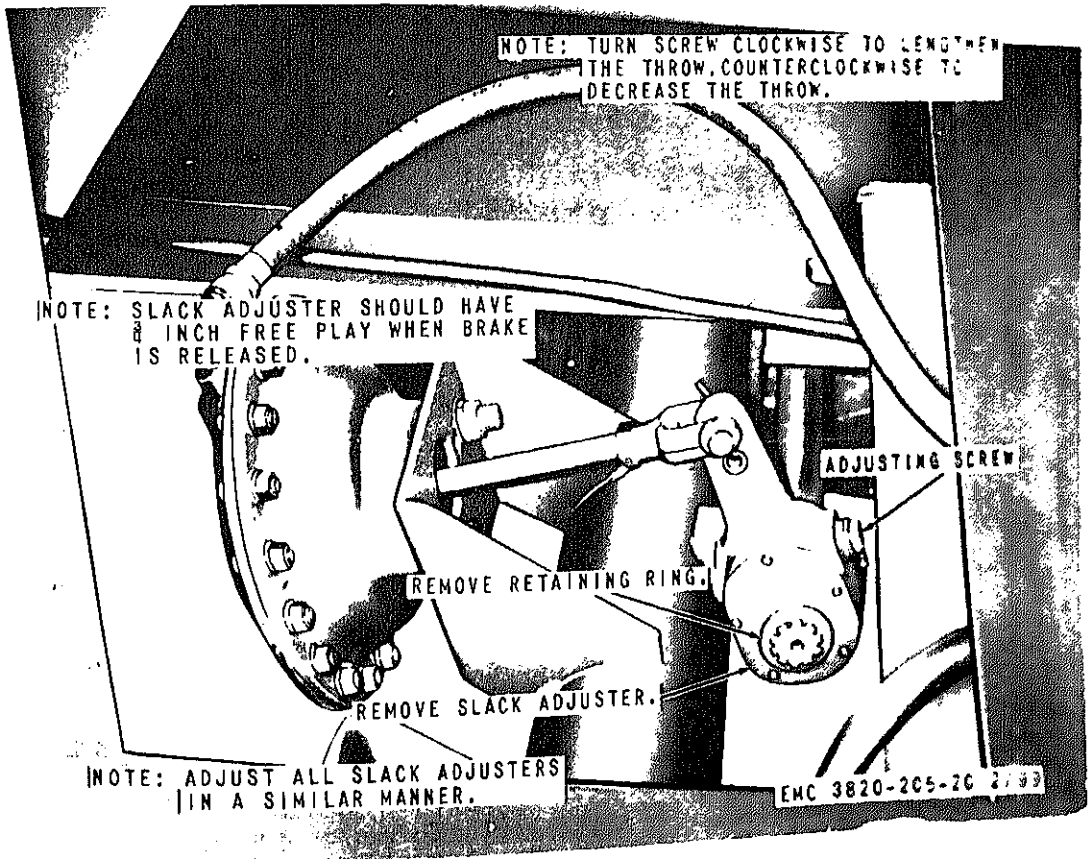
b. Cleaning, Inspection, ... P... and inspect all parts. Replace ... damaged or defective or worn parts.

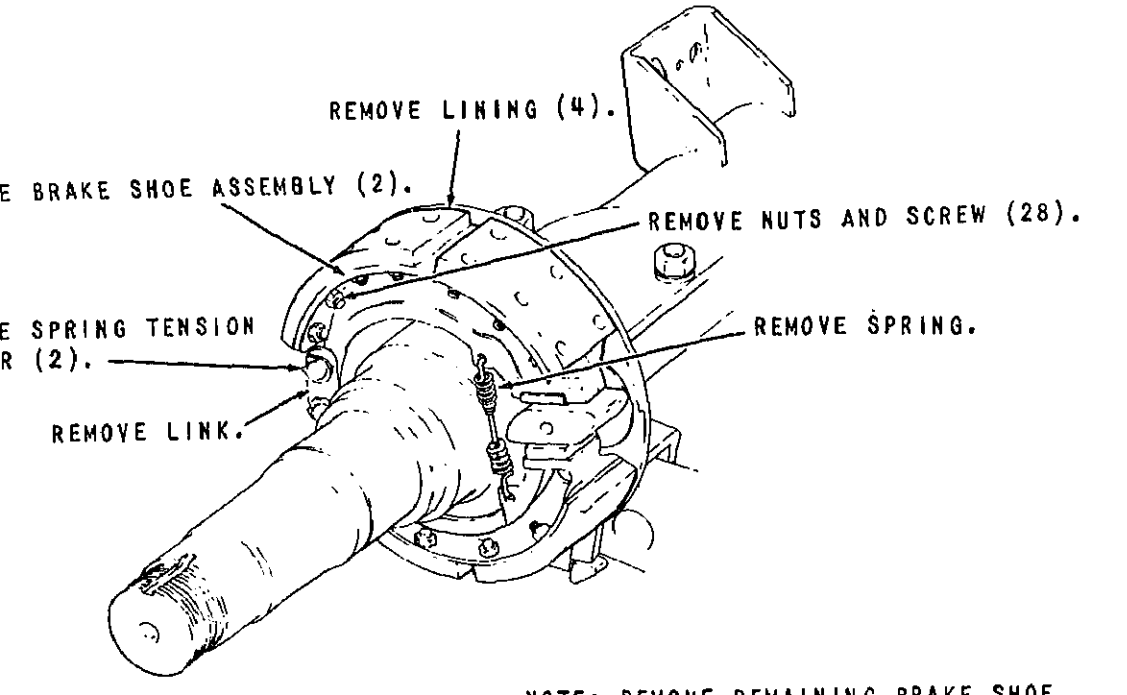
c. Installation.

(1) Install the brake ... of instructions on figure ...

(2) Install the wheel ... 116).

d. Adjustment. Adjust the ... (par. 174).





NOTE: REMOVE REMAINING BRAKE SHOE ASSEMBLIES IN A SIMILAR MANNER.

EMC 3820-205-20/2/100

Figure 105. Brake assembly, removal and installation.

CHAPTER 7

SHIPMENT AND LIMITED STORAGE

Section I. SHIPMENT WITHIN ZONE OF INTERIOR

176. Preparation of Jaw Crusher for Shipment

a. General. Detailed instructions for the preparation of the jaw crusher for domestic shipment are outlined within this paragraph. Preservation will be accomplished in sequence that will not require the operation of previously preserved components.

b. Inspection. The jaw crusher will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. Inspection shall be completed as outlined on the quarterly preventive maintenance Services. All deficiencies will be recorded on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

c. Cleaning and Drying. Clean and dry the jaw crusher by an approved method. Approved methods of cleaning and drying, types of preservatives, and methods of application are described in TM 38–230.

d. Painting. Paint all surfaces when the paint has been removed or damaged. Refer to TB ENG 60 for detailed cleaning and painting instructions.

e. Depreservation Guide. A properly annotated DA Form 2258 (Depreservation Guide of Engineer Equipment) will be completed concurrently with preservation for each item of mechanical equipment. Any peculiar requirements will be outlined in blank spaces 27 through 33. The completed depreservation guide will be placed in a waterproof envelope,

solution of 50 percent water to [illegible] ylene glycol conforming to [illegible] 548.

Note. It is not necessary to [illegible] system if the solution [illegible] If temperatures below [illegible] conforming to Specification [illegible] in its undiluted condition.

g. Lubrication System. If [illegible] is low and no leaks are appar[illegible] lubrication chart and fill with [illegible] ricant. Operate the engine at a [illegible] lubricant has been circulated th[illegible] system.

h. Sealing of openings. Ope[illegible] permit the direct entry of wat[illegible] terior of engine-driven equipm[illegible] tors, engine, etc., shall be sealed [illegible] sensitive tape conforming to spe[illegible] T–60, type III, class 1.

i. Fuel Tank. If the fuel tank [illegible] will be fogged with type P–10, [illegible] preservative oil, conforming to *MIL* [illegible] It is not necessary to drain fuel tanks f[illegible] mestic shipment.

j. Hydraulic Control System [illegible] draulic Brake.

(1) Fully retract the piston [illegible] linkage will permit and [illegible]

(2) Coat exposed portions of the [illegible] piston rods and operating [illegible] trols with type P–6 [illegible] forming to specification [illegible] 11796, class 3. If [illegible]

MIL-STD-129.

n. Batteries and Cables. Batteries will be ecured in compartments. Batteries will be illed and fully charged. Cables will be disonnected and secured so as to prevent contact vith the terminals.

o. Pneumatic Tires. Tires will be inflated to heir normal required operating pressure.

p. Air Receivers. Remove pipe plugs from anks and spray or fog the tank interior with ype P-10, grade 2, engine preservative oil conforming to Specification MIL-L-21260 and reinstall. Open draincock to allow excess preervative oil to drain. Leave draincock open o allow condensation to drain.

q. Disassembly, Disassembled Parts, Basic ssue Items.

(1) Disassembly will be limited to the removal of parts and projecting com-

equipment to prevent movement. Shroud e posed hose not protected by storage faciliti with waterproof Kraft wrapping paper (UU P-271).

177. Loading Jaw Crusher for Shipment

a. Construct a ramp of suitable material illustrated on figure 3, and tow the jaw crush onto the carrier as instructed in paragraph 6

b. If a loading ramp or material is not ava able and a suitable lifting device illustrated figure 4 is used, the equipment will be load as follows:

(1) Attach lifting cables to jaw crusher instructed in paragraph 6.

(2) Lift the jaw crusher and place it the center of the carrier.

(3) Remove lifting cables from the ja crusher. Block and secure the ja crusher as illustrated on figure 2.

Section II. LIMITED STORAGE

178. Preparation of Jaw Crusher for Storage

a. General. Detailed instructions for prepar ng the jaw crusher for limited storage is out ined in this paragraph. Limited storage is de ned as storage not to exceed 6 months. Refer o AR 743-505.

b. Inspection. Refer to paragraph 176*b*.

c. Cleaning and Drying. Refer to paragraph 176*c*.

d. Painting. Refer to paragraph 176*d*.

e. Depreservation Guide. Refer to paragraph 176*e*.

f. Cooling System. Refer to paragraph 17

g. Lubrication System. Refer to paragra 176*g*.

h. Sealing of Openings. Refer to paragra 176*h*.

i. Fuel Tank. Tanks will be drained a sprayed or fogged with type P-10, grade engine preservative oil conforming to Specifi tion MIL-L-21260.

j. Hydraulic Control System; Except H draulic Brake. Refer to paragraph 176*j*.

k. Exterior Surfaces. Refer to paragra 176*l*.

2. Fire Protection

TM 5-687	Repairs and Utilities: Fire Protection Equipment and Appliances; I spections, Operations, and Preventive Maintenance.
TM 9-1799	Ordnance Maintenance: Fire Extinguishers.

3. Lubrication

LO 5-3820-205-20/2	Lubrication Order.

4. Operating Instructions

TM 5-3820-205-10/2	Operator's Manual.

5. Painting and Preservation

TB ENG 60	Preservation and Painting of Serviceable Corps of Engineers Equi ment.
TM 9-213	Painting Instructions for Field Use.

6. Preventive Maintenance

AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operatio
TM 9-1870-1	Care and Maintenance of Pneumatic Tires.
TM 9-6140-200-15	Storage Batteries, Lead-Acid Type.
TM 38-750	The Army Equipment Records System and Procedures.

7. Publication Indexes

DA Pam 108-1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Reco ings.
DA Pam 310-1	Index of Administrative Publications.
DA Pam 310-2	Index of Blank Forms.
DA Pam 310-3	Index of Doctrinal, Training, and Organizational Publications.
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals, (ty 4, 6, 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modifi tion Work Orders.
DA Pam 310-5	Index of Graphic Training Aids and Devices.
DA Pam 310-25	Index of Supply Manuals—Corps of Engineers.

II. Training Aids

FM 5–25	Explosives and Demolitions.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–30	Military Symbols.

APPENDIX II

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

This Appendix contains explanations of all maintenance and repair functions authorized for the various echelons. Section II contains the maintenance allocation chart.

2. Maintenance

Maintenance is any action taken to keep material in a serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of material includes the following:

a. Service. To clean, preserve, and replenish fuel and lubricants.

b. Adjust. To regulate periodically to prevent malfunction.

c. Inspect. To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.

d. Test. To verify serviceability and detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, and the like.

e. Replace. To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.

f. Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to, inspecting, clean-

weapons system, or components of a weapon system.

i. Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

3. Explanation of Columns

a. Functional Group. The functional group is a numerical group set up on a function basis. The applicable functional grouping indexes (obtained from the Mobility Command functional grouping indexes) are listed on the maintenance allocation chart in the appropriate numerical sequence. These indexes normally are set up in accordance with their function and proximity to each other.

b. Components and Related Operation. The column contains the Functional Grouping Index heading, subgroup headings, and a brief description of the part starting with the noun name. It also designates the operations to be performed such as service, adjust, inspect, test, replace, repair, and overhaul.

dicated functions of lower echelons.

the operation being performed.

Functional group	Components and related operation	Echelons of maintenance 1	2	3	4	5	Remar
1	ENGINE						
0100	ENGINE ASSEMBLY						
	Engine, Diesel						
	Service	X					
	Inspect	X					
	Test	--	--	X	--	--	Compres sion.
	Replace	--	--	--	X		
	Repair	--	--	X			
	Overhaul	--	--	--	X		
0101	CRANKCASE, BLOCK, CYLINDER HEAD						
	Cylinder and Crankcase Assembly						
	Repair	--	--	X			
	Sleeves, Cylinder						
	Replace	--	--	--	X		
	Head, Cylinder						
	Replace	--	--	X			
	Repair	--	--	X			
0102	CRANKSHAFT						
	Crankshaft Assembly						
	Replace	--	--	--	X		
	Repair	--	--	--	--	X	Metalizi grindi alinin
	Pulley and Damper, Vibration						
	Replace	--	--	X			
	Bearings, Main						
	Replace	--	--	--	X		
0103	FLYWHEEL ASSEMBLY						
	Flywheel Assembly						
	Repair	--	--	--	X	--	Replace ring g
0104	PISTONS, CONNECTING RODS						
	Pistons; Rings; Pins; Retainers; Bearings						
	Replace	--	--	--	X		
	Rods, Connecting						
	Replace	--	--	--	X		
	Repair	--	--	--	X		
0105	VALVES, CAMSHAFTS AND TIMING SYSTEM						
	Valves and Seats						
	Replace	--	--	--	X		
	Repair	--	--	--	X		

	Replace	--	X					
	Rods, Push							
	Replace	--	--	X				
	Followers, Cam; Camshaft; Bearings; Gears; Seals; Cover							
	Replace	--	--	--	X			
0106	ENGINE LUBRICATION SYSTEM							
	Pump, Oil							
	Replace	--	--	--	X			
	Repair	--	--	--	X			
	Filter Assembly, Oil							
	Service	X						
	Replace	--	X					
	Cooler, Oil							
	Replace	--	X					
	Valve, By-pass							
	Replace	--	X					
	Breather							
	Service	X						
	Replace	--	X					
	Pan, Oil							
	Replace	--	--	--	X			
	Lines	--	--	--	--	--	--	Exter
	Replace	--	X					
	Gage, Level							
	Replace	X						
0107	ENGINE STARTING SYSTEM							
	Crank, Hand							
	Replace	--	X					
	Support Assembly							
	Repair	--	X					
0108	MANIFOLDS							
	Manifolds							
	Replace	--	X					
02	CLUTCH ASSEMBLY							
0200	CLUTCH ASSEMBLY							
	Clutch Assembly							
	Service	X						
	Adjust	X						
	Repair	--	--	X				
	Disks							
	Replace	--	--	X				
	Repair	--	--	X				
	Plates							
	Replace	--	--	X				
0202	CLUTCH RELEASE MECHANISM							
	Shaft, Cross; Yoke, Throwout							
	Replace	--	--	X				
	Lever							
	Replace	--	X					
03	FUEL SYSTEM							

0302	FUEL PUMPS						
	Injection Pump, Diesel			X			
	Replace				X		
	Repair					X	
	Drive, Injection Pump					X	
	Replace					X	
	Repair						
0304	AIR CLEANER						
	Air Cleaner Assembly	X					
	Service		X				
	Repair						
0306	TANKS, LINES, FITTINGS						
	Tank, Fuel	X					
	Service		X				
	Replace			X			
	Cap, Fuel Tank			X			
	Replace						
	Lines		X				
	Replace		X				
	Repair						
	Fittings		X				
	Replace						Refe G 03
0308	ENGINE SPEED GOVERNOR						
0309	FUEL FILTERS						
	Filter Assembly	X					
	Service		X				
	Replace						
0311	ENGINE STARTING AIDS						
	Starting Aid, Ether	X					
	Service		X				
	Replace						
	Lines and Fittings		X				
	Replace						
0312	THROTTLE CONTROLS						
	Controls, Throttle			X			
	Replace						
04	EXHAUST SYSTEM						
0401	MUFFLER AND PIPES						
	Muffler and Pipes, Exhaust			X			
	Replace						
05	COOLING SYSTEM						
0501	RADIATOR						
	Radiator Assembly			X			
	Service			X			
	Inspect					X	

0503	HEADERS, THERMOSTATS AND GASKET						
	Thermostat						
	Test		X				
	Replace		X				
	Fittings; Hoses; Clamps; Header						
	Replace		X				
0504	WATER PUMP						
	Pump Assembly, Water						
	Service	X					
	Replace		X				
	Repair			X			
0505	FAN ASSEMBLY						
	Fan, Engine Cooling						
	Replace		X				
	Guard, Fan						
	Replace		X				
	Belts, Fan						
	Adjust	X					
	Replace		X				
06	ELECTRICAL SYSTEM						
0601	GENERATOR						
	Generator Assembly						
	Test		X				
	Replace		X				
	Repair			X			
	Brushes						
	Replace		X				
0602	GENERATOR REGULATOR						
	Regulator, Generator						
	Adjust		X				
	Test		X				
	Replace		X				
0603	STARTING MOTOR						
	Starter Assembly						
	Service	X					
	Test		X				
	Replace		X				
	Repair			X			
	Brushes; Solenoid						
	Replace		X				
0606	ENGINE SAFETY CONTROLS						
	Switch, Engine Safety Control						
	Replace		X				
	Governor, Overspeed						
	Replace		X				
	Repair						X
0607	INSTRUMENT OR ENGINE CONTROL PANEL						
	Gages; Switches						
	Replace		X				

0609	LIGHTS										
	Lamps; Doors; Lens; Lights										
	Replace							X			
0610	SENDING UNITS										
	Sending Units										
	Replace							X			
0612	BATTERIES										
	Batteries										
	Service						X				
	Test							X			
	Replace							X			
	Box; Cables										
	Repair							X			
0613	HULL OR CHASSIS WIRING HARNESS										
	Wiring, Chassis										
	Repair							X			
	Coupling, Trailer Electrical										
	Replace							X			
	Repair							X			
0615	RADIO INTERFERENCE SUPRESSION										
	Components										
	Test							X			
	Replace							X			
0	FRONT AXLE										
1000	FRONT AXLE ASSEMBLY										
	Dolly; Drawbar; Lunette										
	Replace							X			
	Axle; Frame										
	Replace								X		
11	REAR AXLE										
1100	REAR AXLE ASSEMBLY										
	Axle Assembly, Rear										
	Repair								X		
1108	WALKING BEAMS										
	Beams, Walking										
	Service						X				
	Repair										X
12	BRAKES										
1202	SERVICE BRAKES										
	Brakes Assemblies										
	Repair							X			
1206	MECHANICAL BRAKE SYSTEM										
	Slack Adjusters										
	Service						X				
	Adjust							X			
	Replace							X			

	Chambers, Air						
	Replace		X				
	Repair			X			
	Valve, Relay						
	Replace		X				
	Repair			X			
	Filters, Air						
	Service	X					
	Replace		X				
	Reservoir, Air						
	Service	X					
	Replace		X				
	WHEELS						
311	WHEEL ASSEMBLY						
	Wheel Assemblies						
	Service		X				
	Repair		X				
313	TIRES, TUBES						
	Tires						
	Service	X					
	Replace		X				
	Tubes						
	Replace		X				
	Repair		X				
	FRAME, TOWING ATTACHMENTS						
501	FRAME ASSEMBLY						
	Frame Assembly						
	Replace						X
	Platforms; Ladders						
	Replace		X				
503	PINTLES						
	Hooks, Pintle						
	Service	X					
	Repair		X				
506	FIFTH WHEEL						
	Fifth Wheel Assembly						
	Service	X					
	Repair		X				
	BASIC ISSUE ITEMS, MANUFACTURER INSTALLED						
3100	BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED						
	Accessories						
	Replace	X					
	BASIC ISSUE ITEMS TROOP INSTALLED						
3200	BASIC ISSUE ITEMS TROOP INSTALLED OR AUTHORIZED						
	Accessories; Common Tools; Publications						

		1	2	3	4
18	HOOD				
1801	HOOD				
	Housing Assembly				
	Replace		X		
1808	STOWAGE RACKS, BOXES				
	Box, Tool				
	Replace		X		
	Reel, Power Cable				
	Repair		X		
22	ACCESSORY ITEMS				
2202	ACCESSORY ITEMS				
	Reflectors				
	Replace		X		
	Cables and Hose				
	Replace	X			
2210	DATA PLATES AND INSTRUCTION HOLDERS				
	Plates, Data				
	Replace			X	
	Plates, Identification and Instruction; Holder, Instruction				
	Replace		X		
40	ELECTRIC MOTORS				
4000	MOTOR ASSEMBLY				
	Service	X			
	Replace		X		
	Repair			X	
	Overhaul				X
4001	ROTOR ASSEMBLIES				
	Rotor				
	Replace			X	
4002	STATOR ASSEMBLIES				
	Stator Assemblies				
	Replace			X	
	Repair				X
4004	VENTILATING SYSTEM				
	Guard, Dust				
	Replace		X		
	Fan, Cooling				
	Replace			X	
4005	FRAME SUPORTS AND HOUSINGS				
	End Assembly; Frame, Center				
	Replace			X	
	Repair			X	
	Box, Junction				
	Replace		X		
4007	DRIVE COMPONENTS				
	Pulley				
	Replace		X		
	Belts				
	Adjust	X			
	Replace		X		
4009	CONTROL PANELS				
	Panel, Main Control				
					X

	Replace				X
4018	TERMINAL BLOCKS				
	Conduit, Power; Connectors; Receptacle				
	Replace				X
	Cable, Power				
	Replace		X		
	Wiring				
	Repair		X		
43	HYDRAULIC SYSTEMS				
4300	HYDRAULIC SYSTEM				
	System, Hydraulic				
	Service	X			
	Inspect	X			
4301	HOSE				
	Hose				
	Replace		X		
4302	PUMP				
	Pump and Mounting Parts				
	Repair		X		
4307	HYDRAULIC CYLINDERS				
	Cylinder, Hydraulic				
	Repair				X
4308	RESERVOIRS				
	Reservoir, Oil				
	Service	X			
	Replace		X		
47	GAGES; MEASURING DEVICES				
4701	INSTRUMENTS SPEED				
	Tachometer and Hour-meter Combination				
	Replace		X		
	Tachometer Drive				
	Replace		X		
	Repair		X		
4702	GAGES				
	Gage, Fuel				
	Replace		X		
75	CRUSHING EQUIPMENT COMPONENTS				
7501	BELTING				
	Belts, Main Drive				
	Adjust		X		
	Replace		X		
	Pulley, Main Drive				
	Replace				X
	Guards and Attaching Parts				
	Replace		X		
	Conveyor Assembly, Discharge				
	Repair		X		
	Frame, Conveyor; Hopper				
	Replace				X
	Belting				
	Adjust		X		
	Replace				X

Functional group	Components and related operation	1	2	3	4	5	
7503	PULLEYS						
	Bearings	X					
	Service	--	--	X			
	Replace	--	--	--	--	--	Conveyor head pulley.
	Shaft and Pulley						
	Replace	--	--	X			
7504	ROLLS						
	Roller Assembly	--	X				
	Repair						
7506	SHAFTS						
	Gear Assembly, Conveyor Drive	X					
	Service	--	X				
	Replace	--	--	X			
	Repair						
	Pulleys	--	X				
	Replace						
7510	FEEDING FRAMES						
	Feeder Assembly	--	--	X			
	Repair						
	Hopper	--	--	X			
	Replace						
7512	FEEDING SHAFTS						
	Gear Assembly, Feeder Drive	X					
	Service	--	--	X			
	Replace	--	--	X			
	Repair						
	Pulleys	--	--	X			
	Replace						
	Arm, Torque; Foot; Turn Buckle	--	X				
	Replace						
7515	PAN FEEDER						
	Apron Assembly	X					
	Service	--		X			
	Repair						
	Rollers	--		X			
	Replace	--		X			
	Repair						
	Bars; Pins	--		X			
	Replace						
7520	CRUSHER FRAMES						
	Crusher Assembly		X				
	Service		X				
	Inspect		--	X			
	Repair						
	Frame		--	--	--	X	
	Replace						
	Springs		--	X			

	Replace				X
	Seats and Plates, Toggle				
	Replace			X	
	Pitman				
	Repair				X
	Gear Box Assembly, Jaw Adjust				
	Replace			X	
	Repair			X	
7523	SHAFTS				
	Shaft Assemblies				
	Replace				X
	Rearing and Seals				
	Replace				X
	Wheel, Balance				
	Replace			X	
7525	SCREENING BASE, BOX				
	Box and Plates				
	Replace				X
	Rail, Center and Crossmember, Feed				
	Replace			X	
	Mounting, Rubber				
	Replace		X		
	Deflector, Rubber				
	Replace		X		
	Underhopper				
	Replace			X	
	Box Divert; Chute; Gate				
	Replace		X		
7528	SCREENS AND ATTACHING PARTS				
	Screens				
	Replace	X			
	Bar, Grizzley				
	Replace		X		
	Screen Assembly, Vibrating				
	Repair		X		
7529	ECCENTRIC OR GYRATOR SHAFT				
	Shaft Assembly				
	Service	X			
	Replace			X	
	Bearings				
	Replace			X	
	Guard and Pulley				
	Replace		X		
	Wheel, Balance				
	Replace		X		
76	FIRE FIGHTING EQUIPMENT				
7603	FIRE EXTINGUISHERS				

INDEX

CNGB (1)
CofEngrs (3)
CSigO (1)
CofT (1)
TSG (1)
USA Maint Bd (1)
USAARTYBD (2)
USAARMBD (2)
USAJB (2)
USARADBD (2)
USAAESWBD (2)
USAAVNBD (2)
USCONARC (3)
USASMCOM (1)
USAMOCOM (2)
OS Maj Comd (5) except
  USARJ (10)
USASETAF (2)
MDW (1)
Armies (2)
Corps (2)
USA Corps (1)
Div (1)
Engr Bde (1)
USMA (2)
Svc Colleges (2)
Br Svc Sch (2) except
  USAES (100)
Engr Sec, GENDEP (OS) 10

Army Tml (1)
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AMS (3)
Chicago Proc Ofc (10)
USA Mob Spt Cen (36)
JESCO (10)
Fld Comd, DASA (8)
USACOMZEUR (2)
USAREUR Engr Sup Con Agcy
USAREUR Engr Proc Cen (2)
MAAG (1)
JBUSMC (1)
Units org under fol TOE:
  5-48 (2)
  5-114 (2)
  5-115 (2)
  5-117 (2)
  5-237 (5)
  5-262 (5)
  5-267 (1)
  5-278 (5)
  5-279 (2)
  5-500 (EA, EB) (2)

NG: None.

USAR: Same as Active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

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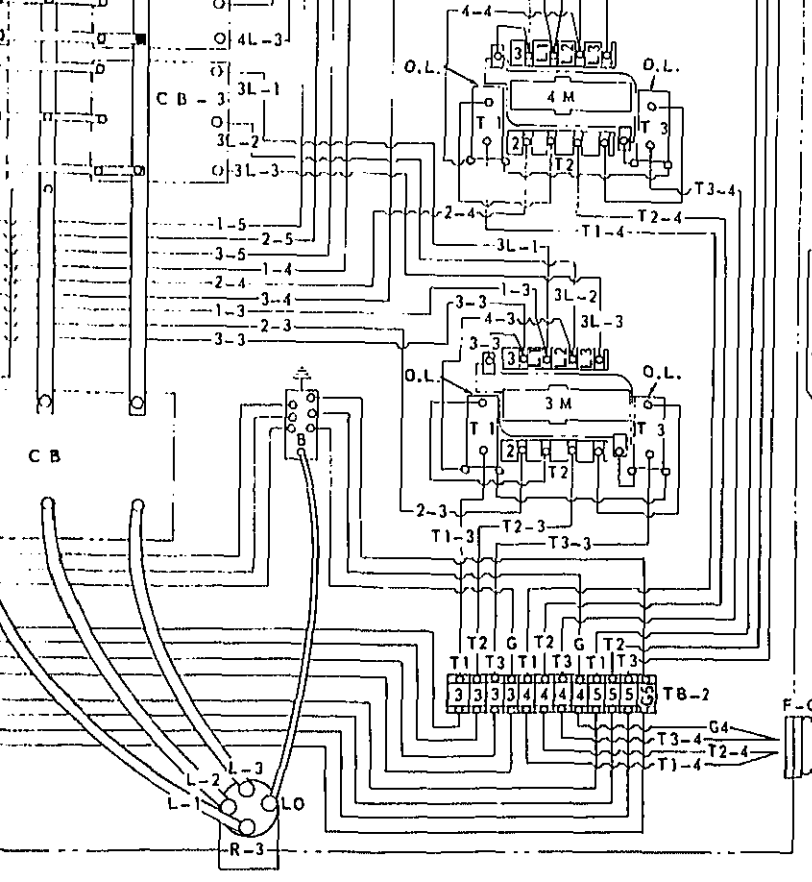
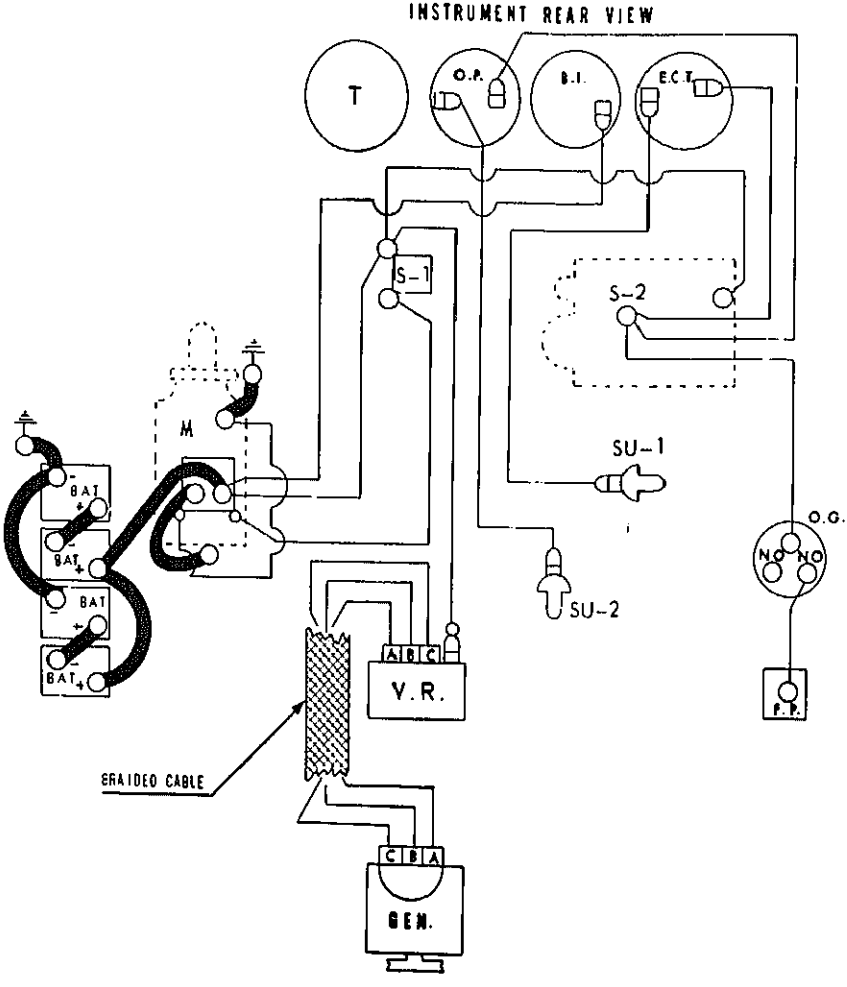


	JUNCTION BOX
R-1	RECEPTACLE
R-2	RECEPTACLE
R-3	RECEPTACLE
S-1	FEEDER MOTOR S
S-2	MAIN CONVEYOR
S-3	SCALPER SCREEN
S-4	SCALPER SCREEN
S-5	MAIN CONVEYOR
S-6	FEEDER MOTOR S
S-7	OPERATORS SAFE
S-8	CONTROL PANEL
TB-1	TERMINAL BLOCK
TB-2	TERMINAL BLOCK
TB-3	RELAY BLOCK
FM	FEEDER MOTOR (
MCM	MAIN CONVEYOR M
SSM	SCALPER SCREEN
3M	MAGNETIC LINE SW
4M	MAGNETIC LINE SW
5M	MAGNETIC LINE SW
O.L.	OVER LOAD LINE S
4L-1	LINE OR CABLE ID

6 Control and distribution panel, front view

Figure 1—Continued.



LEGEND

BAT.	BATTERY
B.I.	BATTERY GI INDICATOR
E.C.T.	ENGINE COO TEMPERATU
F.P.	FUEL INJEC
GEN.	GENERATOR
M.	STARTER MO
N.O.	NORMALLY
O.P.	ENGINE OIL
O.G.	OVER SPEED
S-1	STARTER SW
S-2	ENGINE SAFI
SU-1	SENDING UNI COOLANT TE
SU-2	SENDING UNI
T.	TACHOMETE
V.R.	VOLTAGE RE

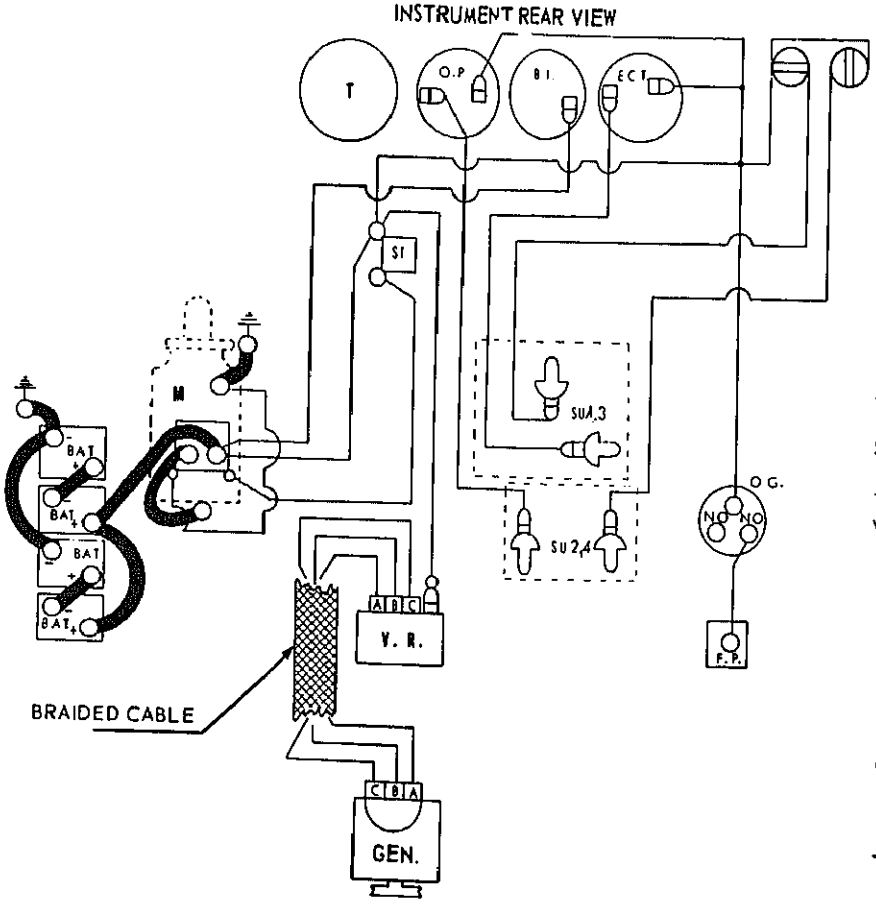
SYMBOL

−	NEGATIVE
+	POSITIVE
	CONNECTOR
	GROUND CON
o	TERMINAL
A	PIN CONNEC

MSC 38

1 Serial No. range 2050 through 2087

Figure 1. Wiring diagram.



LEGEND

BAT.	BATTERY
B.I.	BATTERY GENERATOR INDICATOR GAGE
E.C.T.	ENGINE COOLANT TEMPERATURE GAGE
F.P.	FUEL INJECTION PUMP
GEN.	GENERATOR
M.	STARTER MOTOR
N.O.	NORMALLY OPEN
O.P.	ENGINE OIL PRESSURE
O.G.	OVER SPEED GOVERNO
SI	STARTER-IGNITION SWI
SU1,3	SENDING UNIT ENGINE COOLANT TEMPERATUR
SU2,4	SENDING UNIT ENGINE OIL PRESSURE
T.	TACHOMETER
V.R.	VOLTAGE REGULATOR

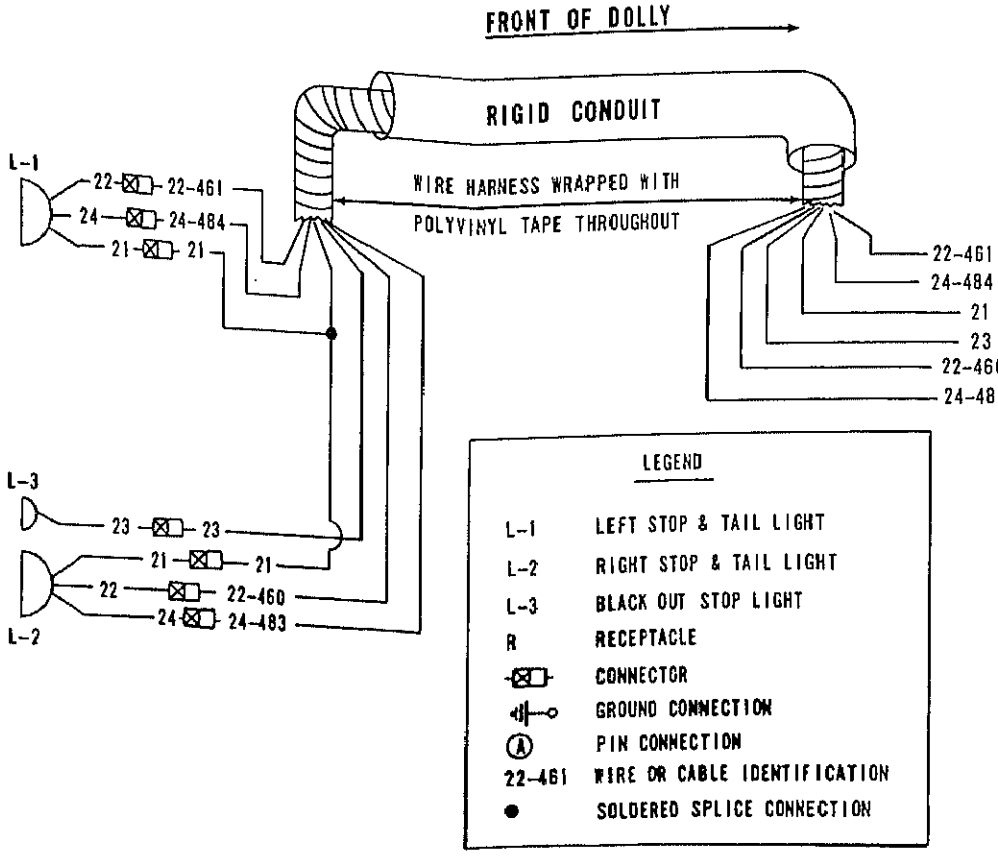
SYMBOL

−	NEGATIVE
+	POSITIVE
	CONNECTOR
	GROUND CONNECTIONS
	TERMINAL
A	PIN CONNECTION
	OIL PRESSURE WARNING LIGHT
	COOLANT TEMPERATURE WARNING LIGHT
	WIRE CONNECTED

MSC 3820-205-20/1/

2 Serial No. range 2090 through 2129

Figure 1—Continued.



3 Dolly wiring diagram

Figure 1—Continued.

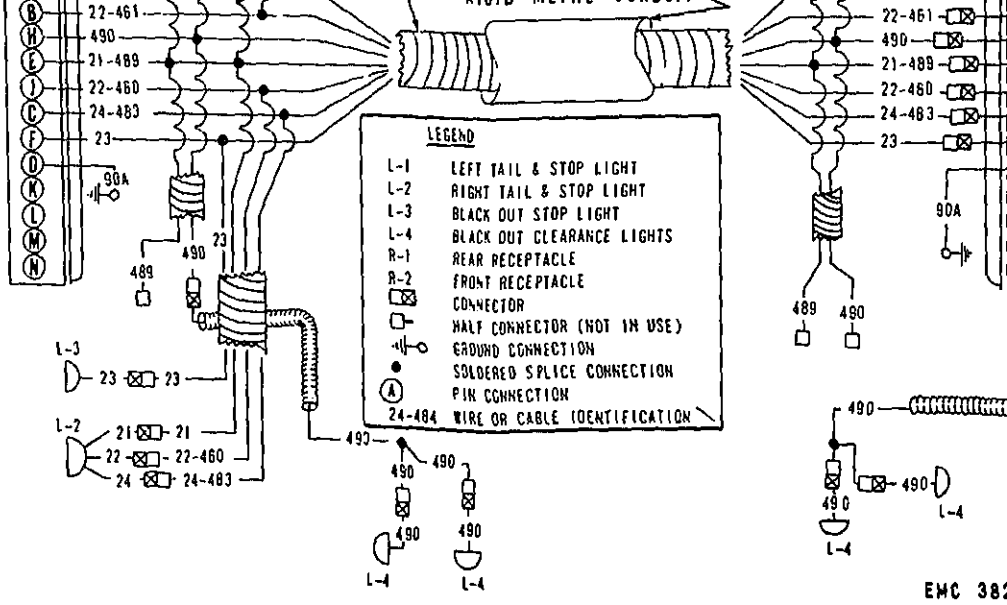
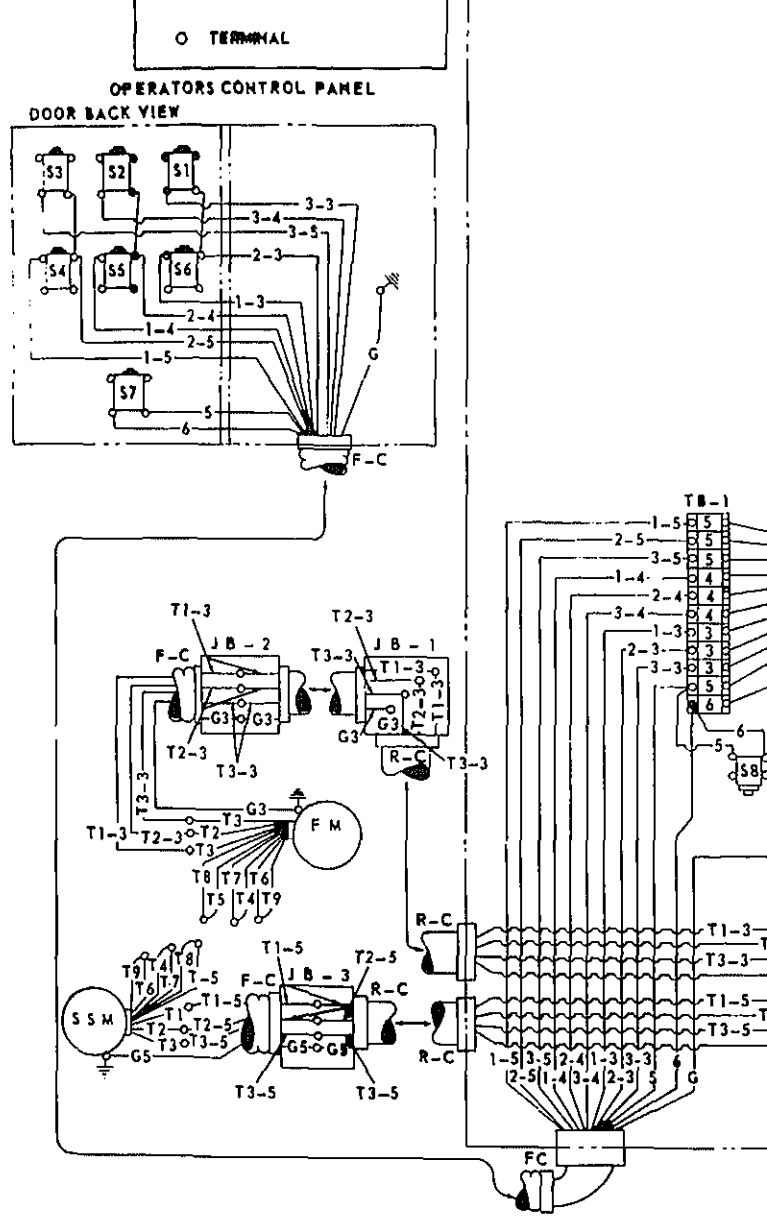
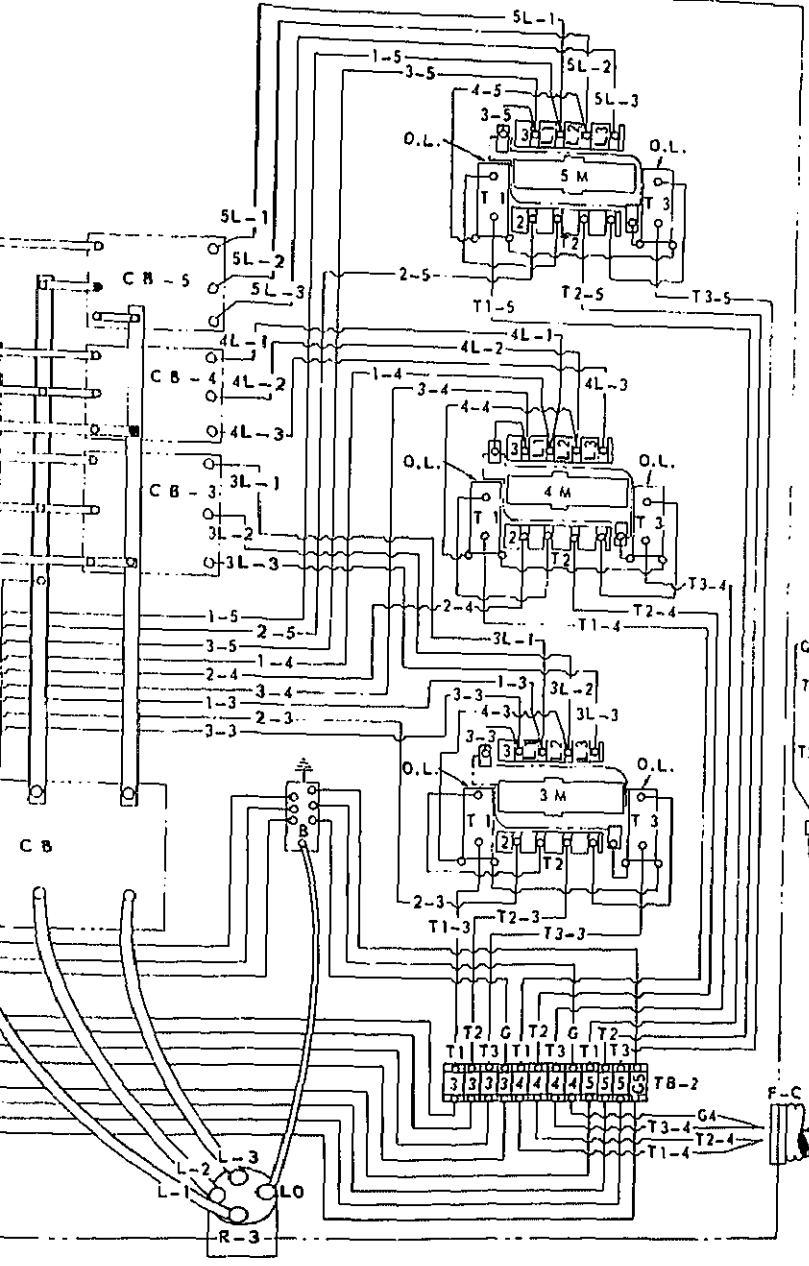


Figure 1—Continued.

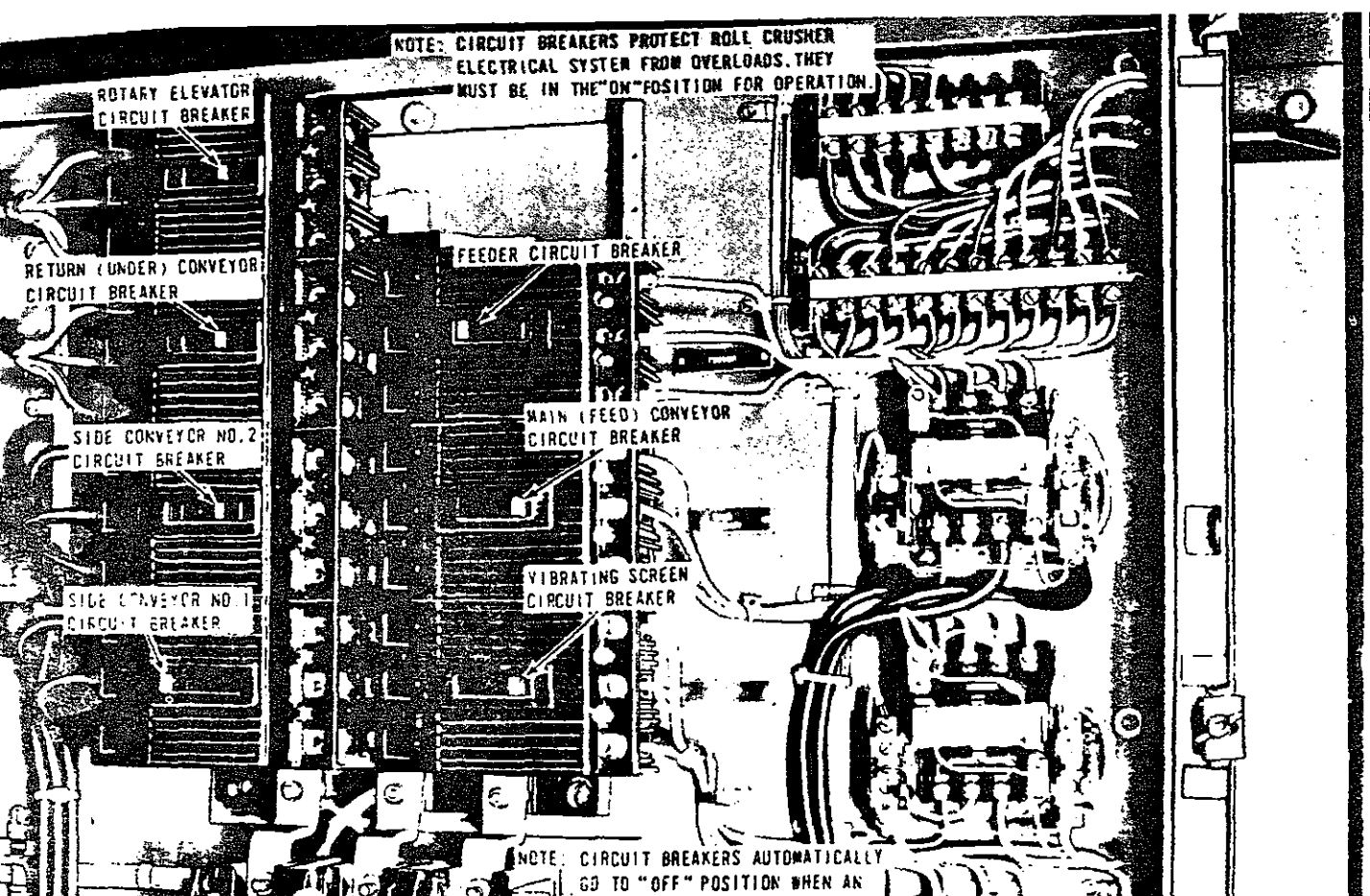

O TERMINAL
OPERATORS CONTROL PANEL
DOOR BACK VIEW
S1
S2
S3
S4
S5
S6
S7
S8
3-3
3-4
3-5
2-3
1-3
2-4
1-4
2-5
1-5
5
6
G
F-C
TB-1
T1-3
T2-3
T3-3
J B - 2
J B - 1
G3
R-C
F M
T3
T2
T1
T8
T7
T6
T5
T4
T9
T1-5
T2-5
J B - 3
S S M
G5
FC

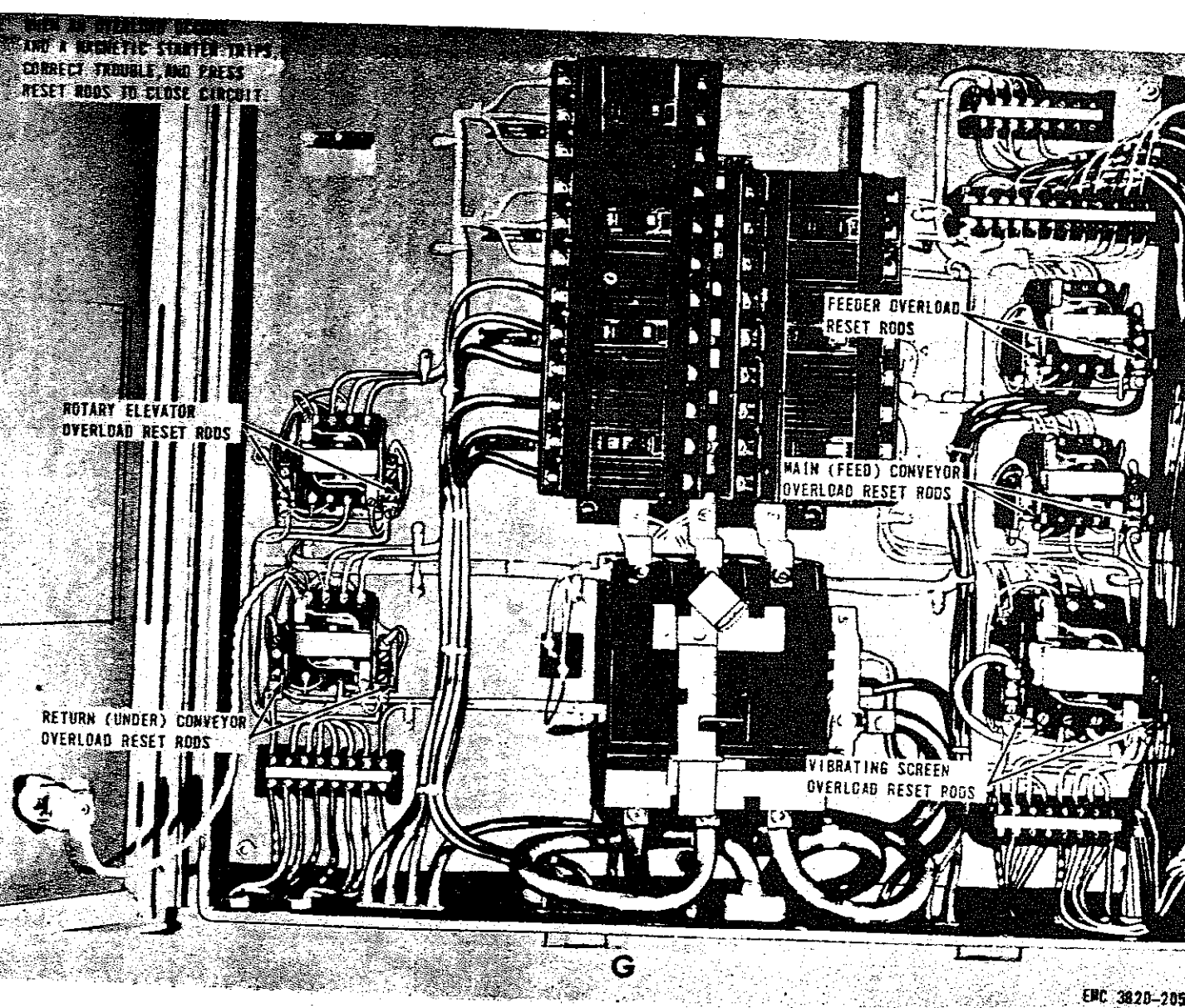


B	BUS GROUND
CB	CIRCUIT BREAKER
CB-1	CIRCUIT BREAKER
CB-2	CIRCUIT BREAKER
CB-3	CIRCUIT BREAKER
CB-4	CIRCUIT BREAKER
CB-5	CIRCUIT BREAKER
F-C	FLEXIBLE CONDUI
R-C	*RIDGID CONDUIT*
JB-1	JUNCTION BOX
JB-2	JUNCTION BOX
JB-3	JUNCTION BOX
R-1	*RECEPTACLE*
R-2	RECEPTACLE
R-3	RECEPTACLE
S-1	FEEDER MOTOR STA
S-2	MAIN CONVEYOR MO
S-3	SCALPER SCREEN M
S-4	SCALPER SCREEN M
S-5	*MAIN CONVEYOR MO*
S-6	FEEDER MOTOR STO
S-7	OPERATORS SAFETY
S-8	CONTROL PANEL SA
TB-1	TERMINAL BLOCK
TB-2	TERMINAL BLOCK
TB-3	RELAY BLOCK
FM	*FEEDER MOTOR (10 I*
MCM	MAIN CONVEYOR MOT
SSM	SCALPER SCREEN MO
3M	MAGNETIC LINE SWIT
4M	*MAGNETIC LINE SWIT*
5M	MAGNETIC LINE SWIT
O.L.	OVER LOAD LINE SWI
4L-1	LINE OR CABLE IDEN

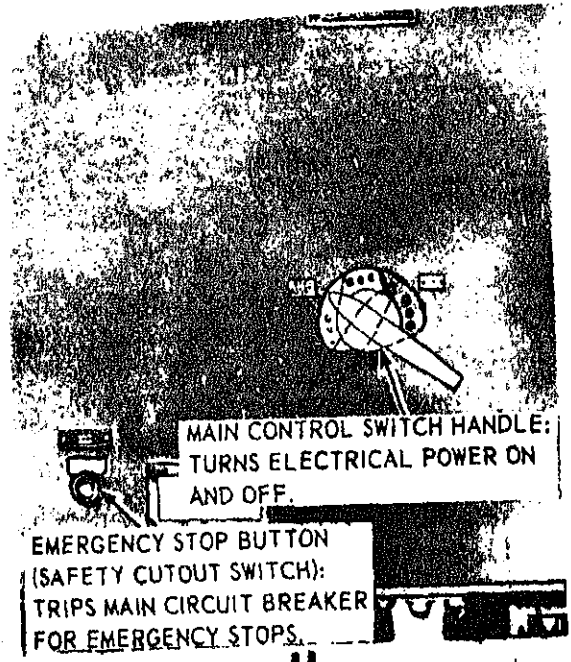
5 Control and distribution panel, front view

Figure 1—Continued.

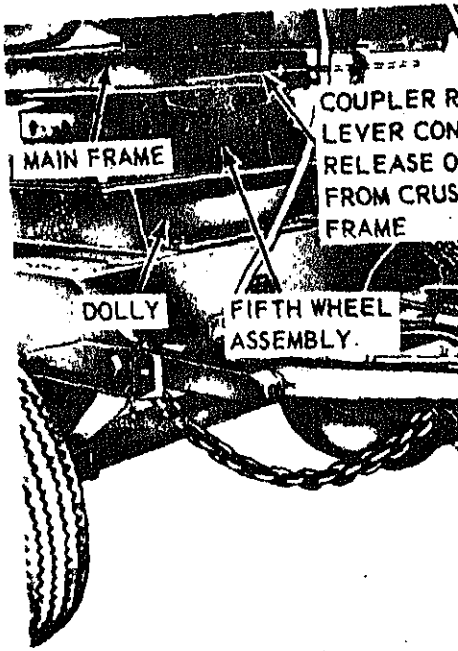

NOTE: CIRCUIT BREAKERS PROTECT ROLL CRUSHER ELECTRICAL SYSTEM FROM OVERLOADS. THEY MUST BE IN THE "ON" POSITION FOR OPERATION.
ROTARY ELEVATOR CIRCUIT BREAKER
RETURN (UNDER) CONVEYOR CIRCUIT BREAKER
FEEDER CIRCUIT BREAKER
SIDE CONVEYOR NO. 2 CIRCUIT BREAKER
MAIN (FEED) CONVEYOR CIRCUIT BREAKER
SIDE CONVEYOR NO. 1 CIRCUIT BREAKER
VIBRATING SCREEN CIRCUIT BREAKER
NOTE: CIRCUIT BREAKERS AUTOMATICALLY GO TO "OFF" POSITION WHEN AN OVERLOAD OCCURS. RESET TO "ON" POSITION WHEN TROUBLE IS CORRECTED.


AND A MAGNETIC STARTER TRIPS,
CORRECT TROUBLE, AND PRESS
RESET RODS TO CLOSE CIRCUIT.
FEEDER OVERLOAD
RESET RODS
ROTARY ELEVATOR
OVERLOAD RESET RODS
MAIN (FEED) CONVEYOR
OVERLOAD RESET RODS
RETURN (UNDER) CONVEYOR
OVERLOAD RESET RODS
VIBRATING SCREEN
OVERLOAD RESET RODS

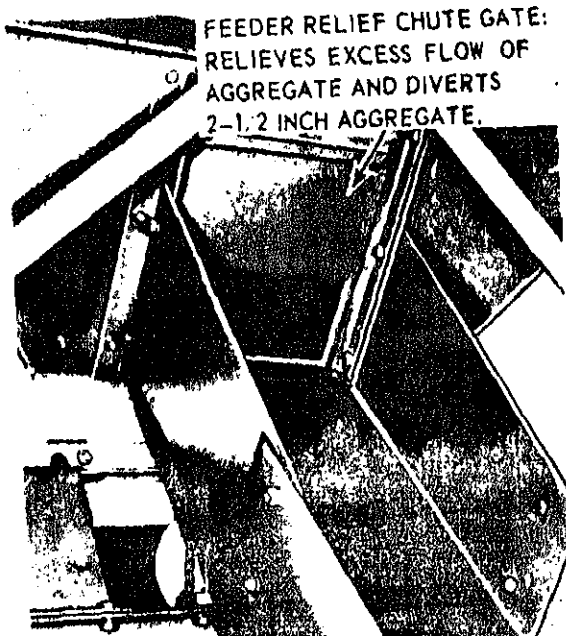
G

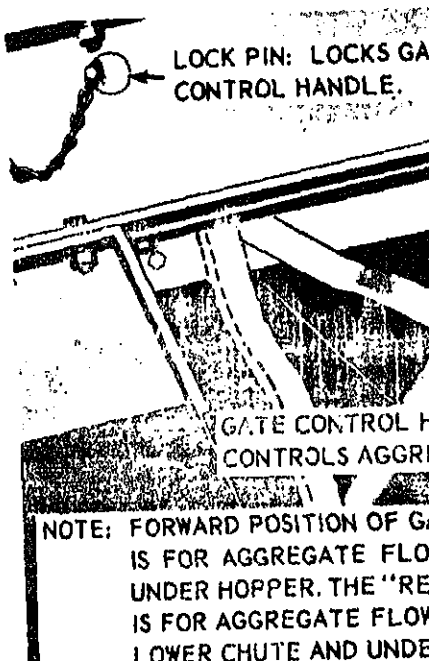

MAIN CONTROL SWITCH HANDLE: TURNS ELECTRICAL POWER ON AND OFF.
EMERGENCY STOP BUTTON (SAFETY CUTOUT SWITCH): TRIPS MAIN CIRCUIT BREAKER FOR EMERGENCY STOPS.

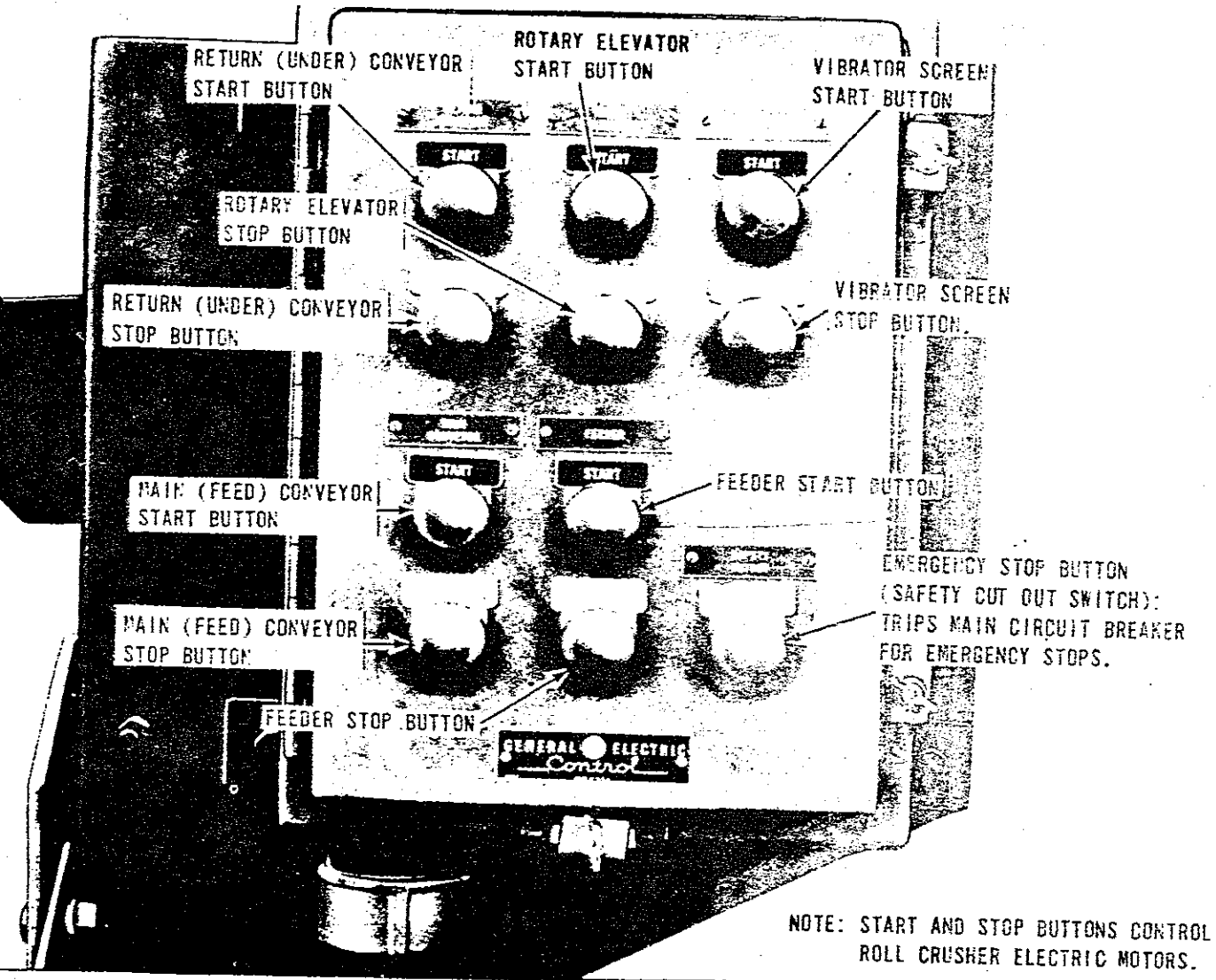
H


MAIN FRAME
COUPLER R
LEVER CON
RELEASE O
FROM CRUS
FRAME
DOLLY
FIFTH WHEEL ASSEMBLY.

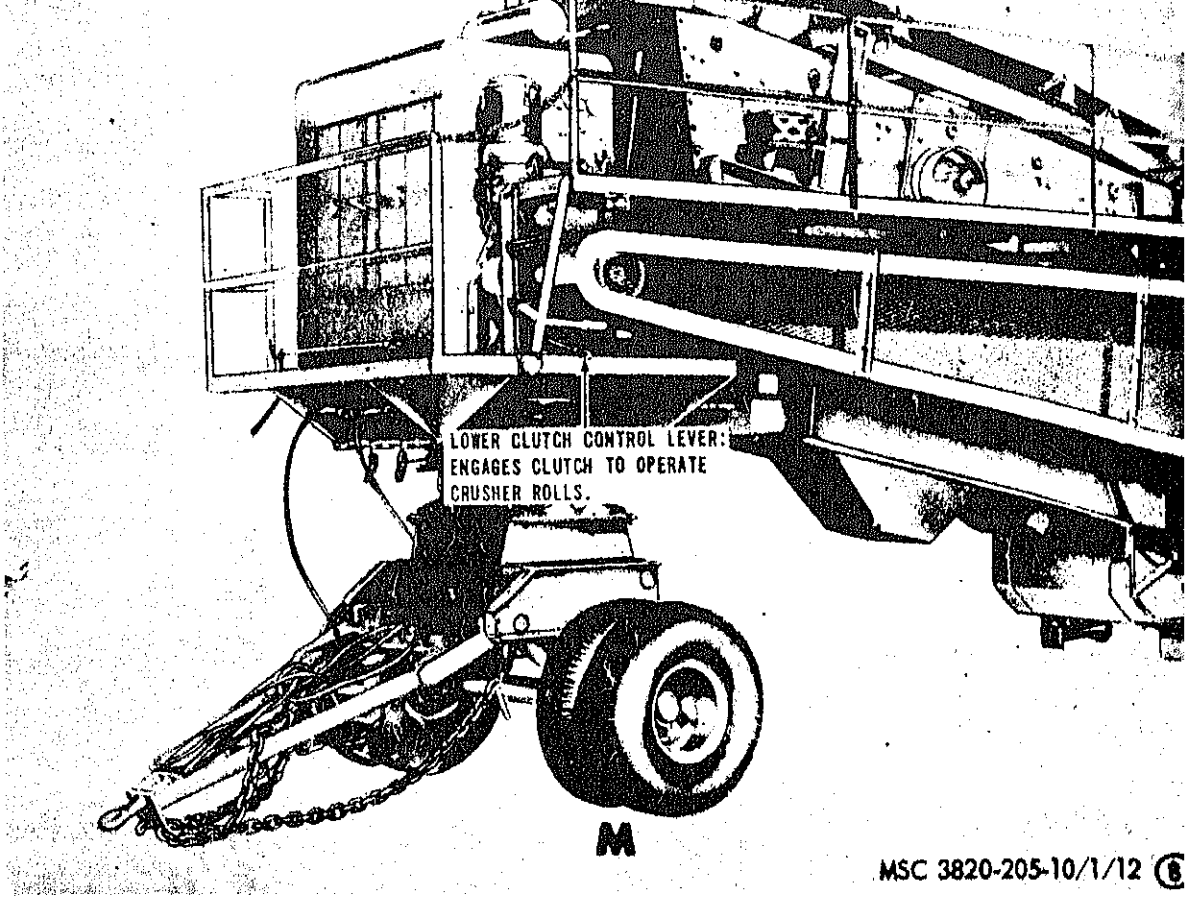
I


FEEDER RELIEF CHUTE GATE: RELIEVES EXCESS FLOW OF AGGREGATE AND DIVERTS 2-1/2 INCH AGGREGATE.


LOCK PIN: LOCKS GA
CONTROL HANDLE.
GATE CONTROL H
CONTROLS AGGR
NOTE: FORWARD POSITION OF G
IS FOR AGGREGATE FLO
UNDER HOPPER. THE "RE
IS FOR AGGREGATE FLOW
LOWER CHUTE AND UNDE



NOTE: START AND STOP BUTTONS CONTROL ROLL CRUSHER ELECTRIC MOTORS.



M—Lower clutch control lever

Figure 12—Continued.

Section III. OPERATION OF EQUIPMENT

12. General

a. The instructions in this section are published for the information and guidance of the personnel responsible for the operation of the roll crusher.

b. The operator must know how to perform every operation of which the roll crusher is capable. This section gives instructions on

13. Starting the Engine

a. Preparation for Starting.

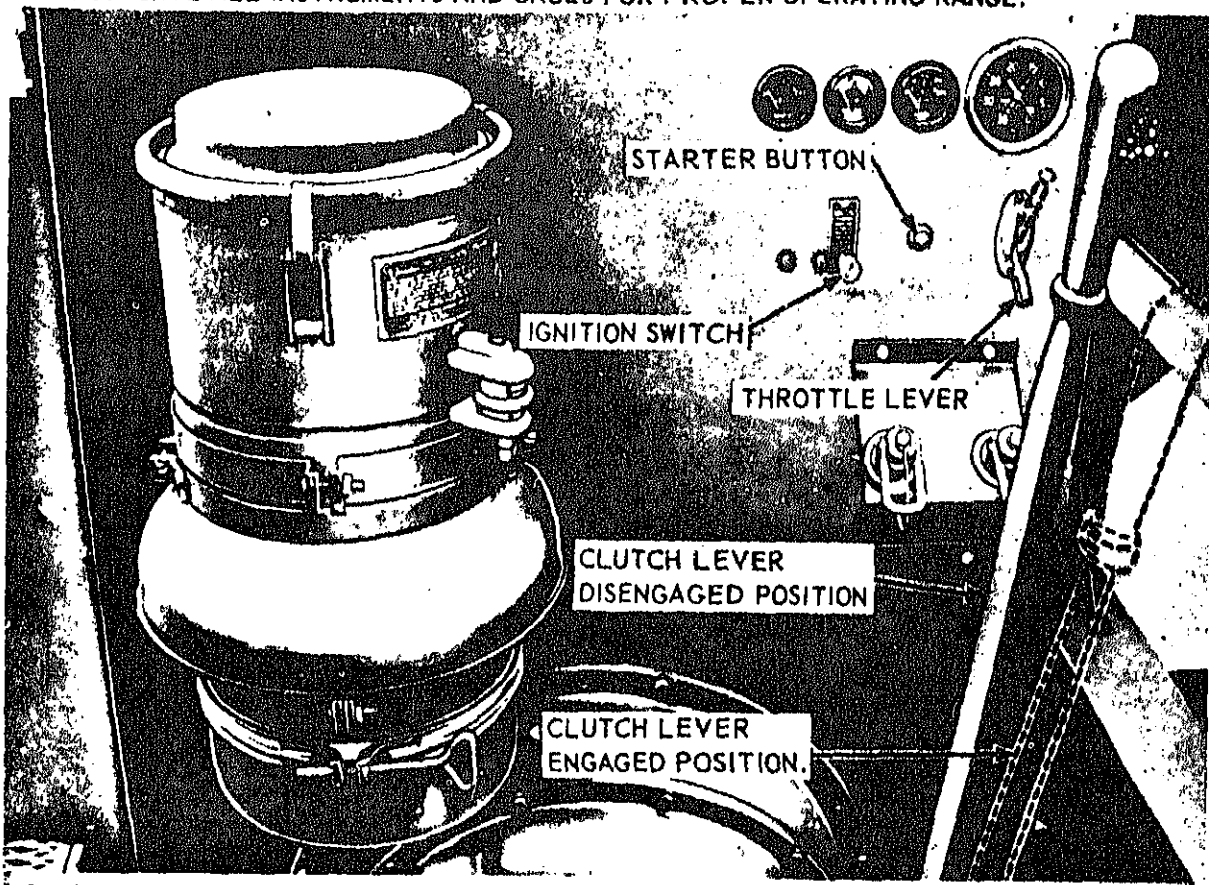
(1) Perform the daily preventive maint nance services (par. 29).

(2) See that the fuel shutoff valve (B, fi 12) is in the open position.

b. Starting. Start the engine in the numer cal sequence as instructed on figure 13

CAUTION: DO NOT CRANK THE ENGINE FOR MORE THAN 30 SECONDS AT A TIME. ALLOW ONE MINUTE BETWEEN ATTEMPTS IF ENGINE FAILS TO START.

1. DISENGAGE THE CLUTCH AND MOVE THE THROTTLE LEVER TO 1/4 OPEN.
2. TURN IGNITION SWITCH TO "ON" POSITION, PRESS STARTER BUTTON (RELEASE IMMEDIATELY WHEN ENGINE STARTS). (SEE NOTE)
3. MOVE THROTTLE LEVER TO "RUN" POSITION.
4. RUN ENGINE AT 1,100 RPM UNTIL OPERATING TEMPERATURE IS REACHED BEFORE APPLYING LOAD.
5. OBSERVE ALL INSTRUMENTS AND GAGES FOR PROPER OPERATING RANGE.



CAUTION: STOP ENGINE IF IGNITION SWITCH FAILS TO RETURN TO "RUN" POSITION AFTER ENGINE STARTS. APPLY LOAD ONLY AFTER COMPLETE ENGINE WARMUP.

NOTE: UNITS OF EQUIPMENT WITHIN SERIAL NUMBER RANGE 6590 THRU 6629 ARE EQUIPPED WITH A DUAL IGNITION--STARTER SWITCH.

NORMAL READINGS

ENGINE TEMPERATURE 165-185°F

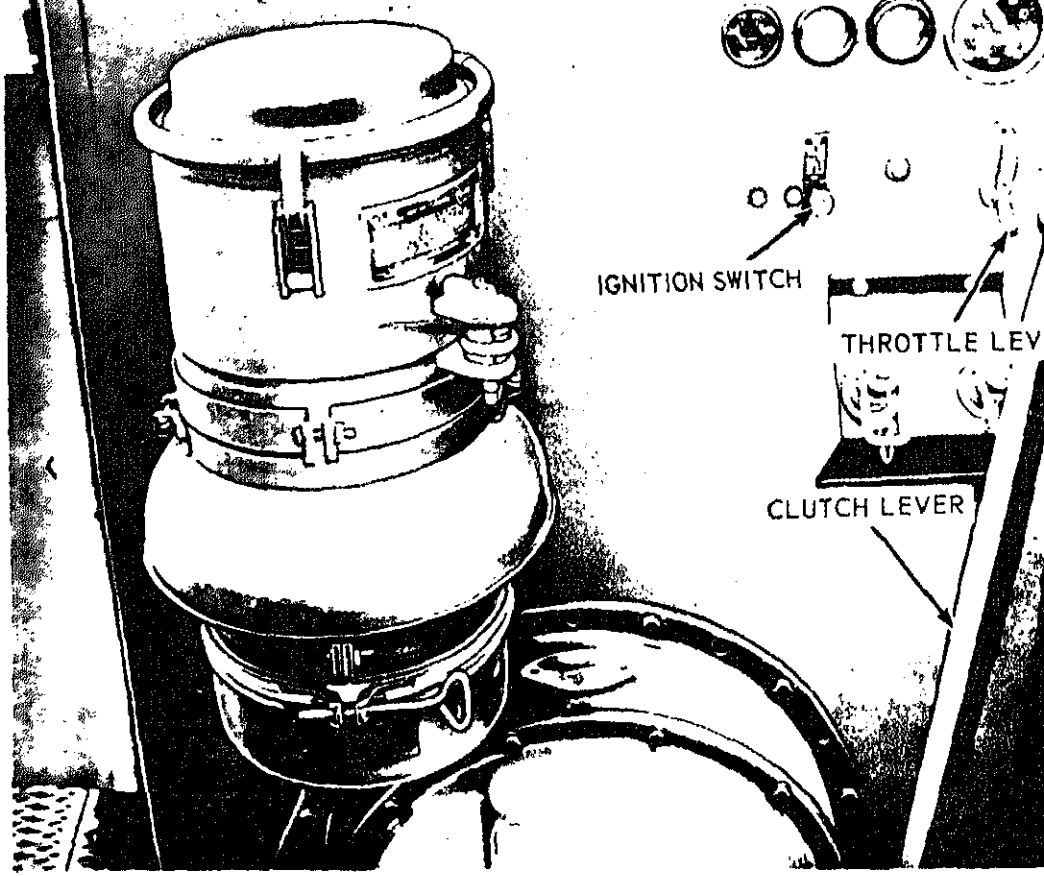


Figure 14. Stopping the engine.

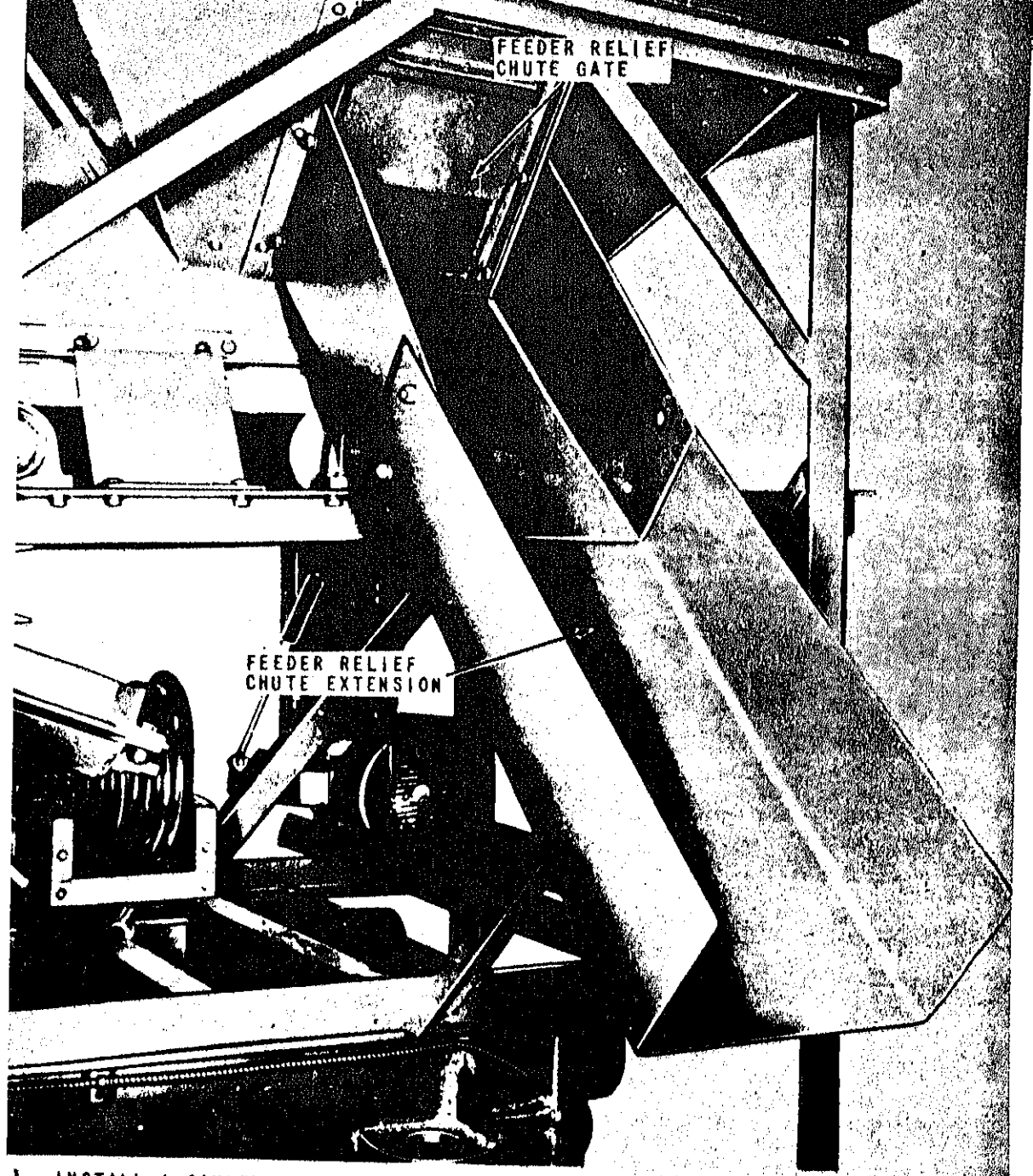
(2) Start the engine as outlined in *b* above. When pressing the starter button, activate the diesel engine ether starting aid as instructed in paragraph 22.

14. Stopping the Engine

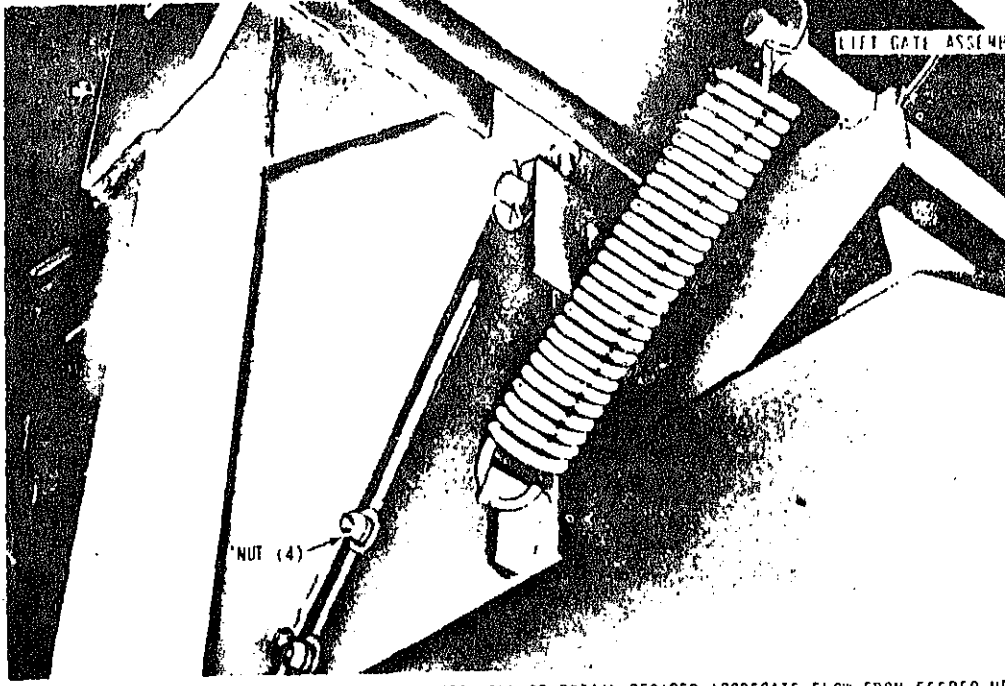
Stop the engi

15. Operating Details

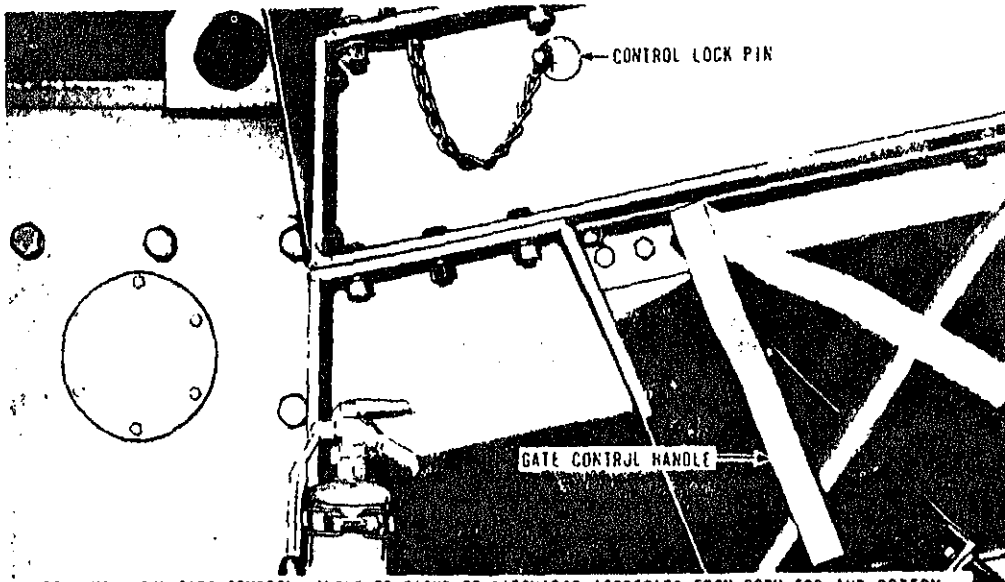
a. General. The operator mus
gregate flowing smoothly thro
crusher (fig. 3) and not allow th
build up or overflow from the con
vibrating screen, or crushing ro



1. INSTALL A CONVEYOR UNDER THE FEEDER RELIEF CHUTE EXTENSION. OPEN THE FEEDER RELIEF CHUTE GATE TO OBTAIN AGGREGATE FROM THE FEEDER HOPPER



2. LOOSEN NUT (4). RAISE OR LOWER LIFT GATE ASSEMBLY TO OBTAIN DESIRED AGGREGATE FLOW FROM FEEDER HO
NUT (4).



NOTE: MOVE THE GATE CONTROL HANDLE TO RIGHT TO DISCHARGE AGGREGATE FROM BOTH TOP AND BOTTOM VIBRATING SCREENS THROUGH THE UNDER HOPPER (FIG.2). MOVE THE GATE CONTROL HANDLE TO LEFT TO DISCHARGE AGGREGATE SCREENED BY TOP VIBRATING SCREEN THROUGH THE LOWER CHUTE (FIG.2), AND AGGREGATE SCREENED BY THE BOTTOM VIBRATING SCREEN THROUGH THE UNDER HOPPER (FIG.2).

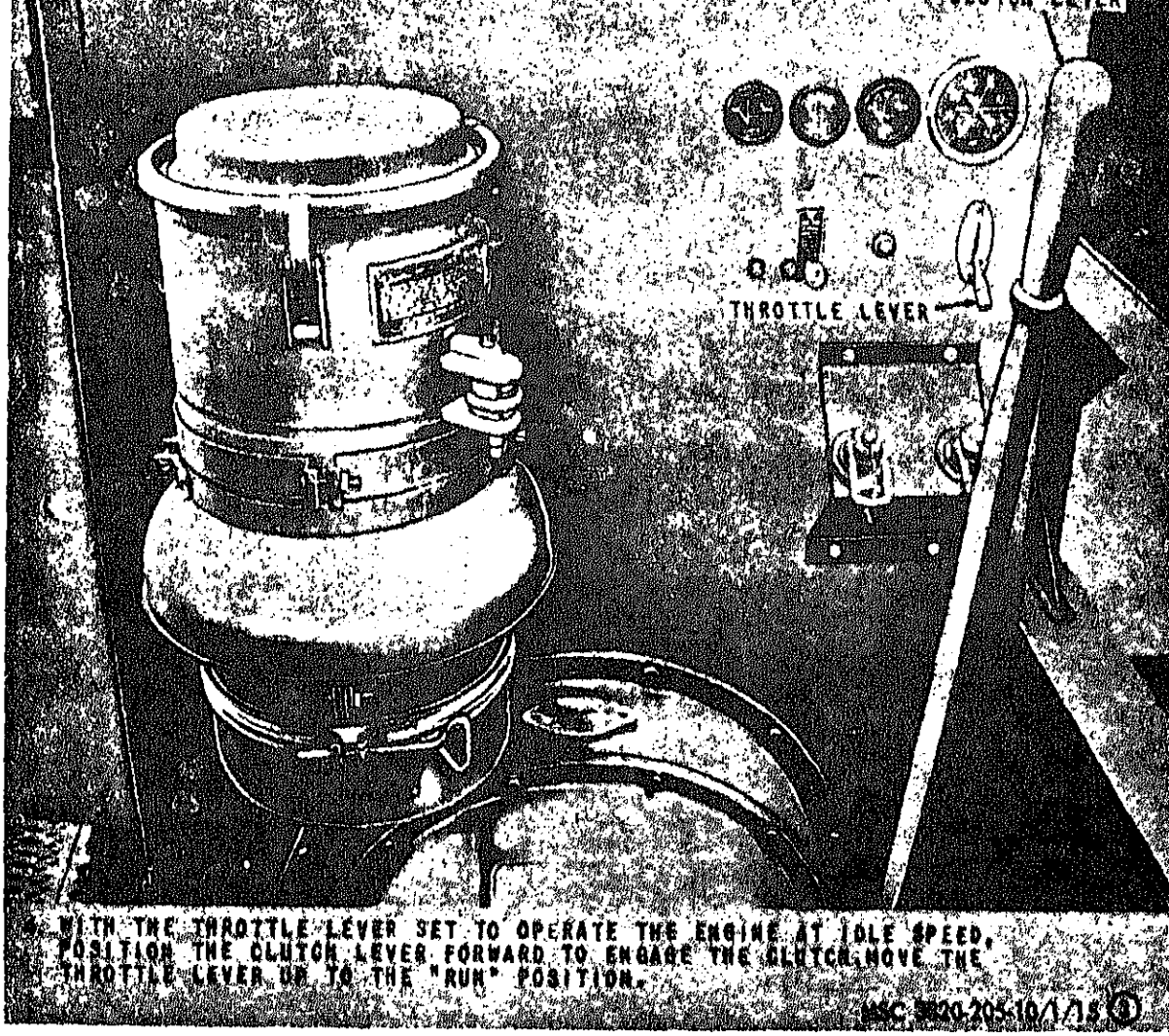


Figure 15—Continued.

capacity without overloading any of its components.

b. Operation.

(1) Start the engine (par. 13).

(2) Make certain the vibrator screens are of the proper size for the desired grade of aggregate (par. 69).

in operation at operator's control bo (6, fig. 15).

(2) Move main control switch handle t OFF position (5, fig. 15).

(3) Disengage engine clutch (4, fig. 15).

(4) Stop the engine (par. 14).

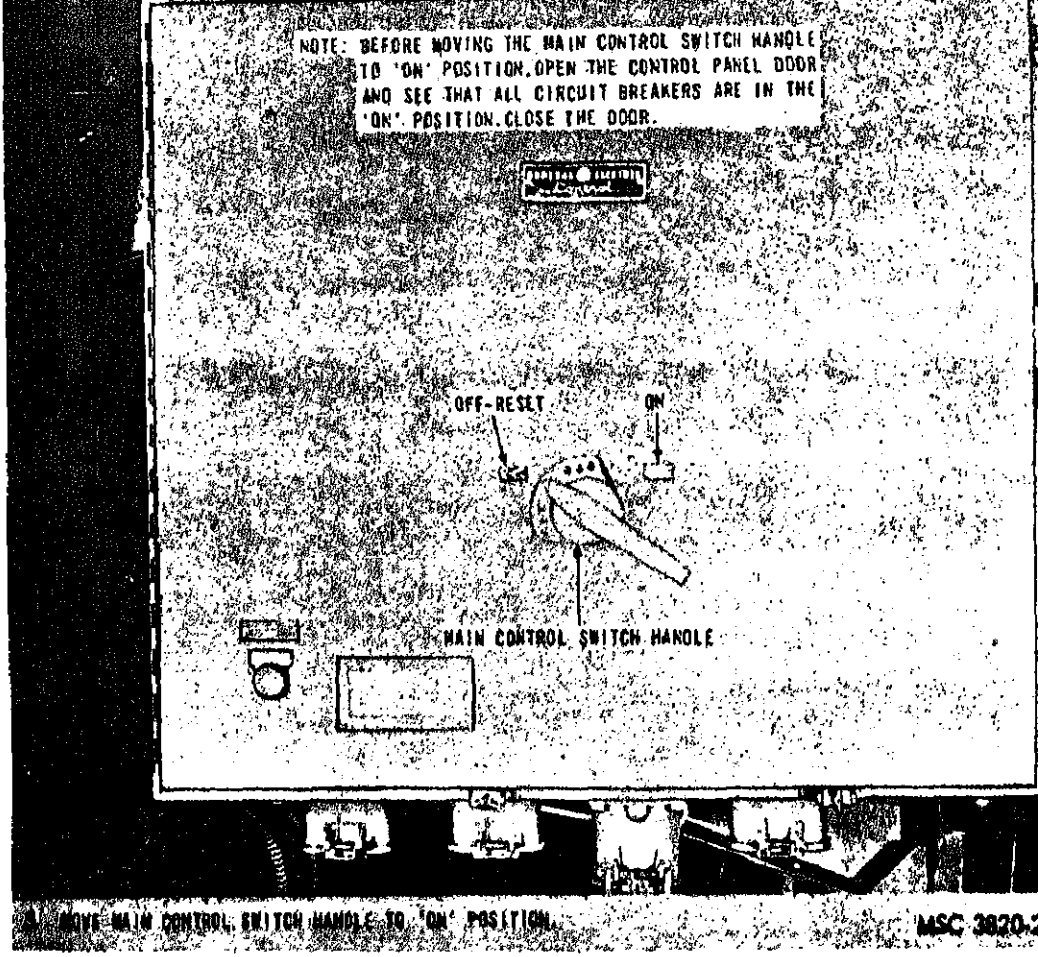


Figure 15—Continued.

c. Keep batteries fully charged. After adding water to the batteries, run the engine for at least 1 hour.

d. Keep fuel tank full at all times.

e. Drain and service fuel filters frequently (par. 51).

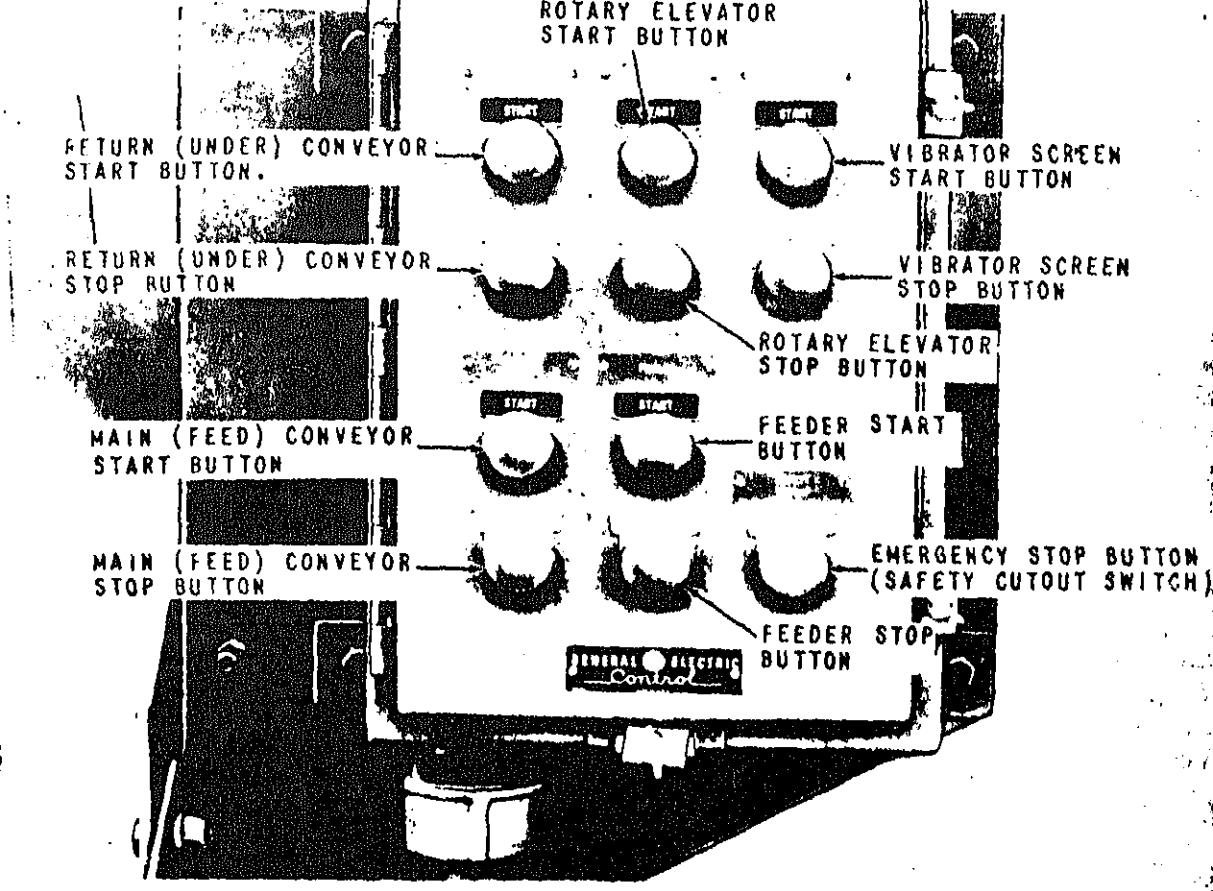
f. Lubricate as specified in LO 5-3820-205-20/1-1.

g. Refer to paragraph 13*c* for cold temperature starting procedure. Start the engine and

all points of application. Check
frequently.

b. Cooling. Make sure the ra
are clean and free of any fo
Avoid the use of water contain
or other substances that would
mation of scale or rust.

c. Engine. If engine beco
from lack of water, allow it to
ing water. Then add water in



6. PUSH START AND STOP BUTTONS TO CONTROL INDIVIDUAL ELECTRIC MOTORS FOR ROLL CRUSHER UNITS. SAFETY CUTOUT SWITCH IS FOR EMERGENCY ONLY.

MSC 3820-205-10/1/15 (5)

Figure 15—Continued.

18. Operation in Dusty or Sandy Areas

a. Lubrication. Clean filters frequently. Clean lubrication points before applying lubricant. Lubricate in accordance with LO 5-3820-205-20/1-1.

b. Cooling. Keep radiator core and fins free while pouring. Service air cleaner frequently to remove sand and dust.

19. Operation Under Rainy or Humid Conditions

a. Lubrication. Lubricate in accordance with

avoid condensation. Service the fuel filters frequently (par. 51).

d. Protection. Cover the engine, electric motors, and controls with a tarpaulin or similar protection when not in use. Remove covers and open engine panels to allow unit to dry during dry periods before operation. Paint or coat with grease all exposed metal surfaces to prevent rusting.

e. Conveyors and Belts. Keep the scrapers adjusted and belts as clean as possible. Clean the conveyors and belts after each operation to prevent material from drying, caking, and building up on them.

20. Operation in Salt Water Areas

a. General. The deterioration and corrosion of exposed metal surfaces is greatly accelerated in saltwater areas. Paint all exposed nonpolished surfaces (TM 9-213). Coat exposed parts of polished steel and other ferrous materials with standard issue rustproofing material, if available, or cover parts with a light coat of grease.

b. Cooling. Be sure the water used in the cooling system is free of salt or alkali. Use an approved rust inhibitor to prevent the formation of rust or scale in the cooling system.

after having used this expedien

c. Fuel System. Keep the fu eliminate condensation. Service frequently.

d. Electrical System. Keep system clean and dry. Wipe off and salt deposits. Pay particul electrical connections. Inspect generator frequently and rem and moisture.

21. Operation at High Altitud

a. The engine in this unit is erate under normal conditions above sea level without special justment.

b. Above 5,000 feet engine e reduced. This is a normal condi not be prevented, but maximu can be maintained by followin structions carefully. Be sure clean and free of objects that flow of air to the unit.

c. Be alert for radiator press allow the coolant to boil with coolant. Inspect the radiator frequently for tight sealing.

Section IV. OPERATION OF AUXILIARY MATERIEL USED IN CONJUNCTION WITH THE ROLL CRUSHER

22. Cold Weather Starting Aid

a. General. The pressure primers are used to supply ether to the diesel engine for starting in cold weather as low as —25° F. The ether is piped into the engine intake manifolds to aid combustion at lower temperatures and should never be used when the engine is warm.

b. Operating. Operate the pressure primers to aid in starting the diesel engine as instructed on figure 16.

23. Fire Extinguisher (Carbon Dioxide Type)

a. Description. The carbon extinguisher is suitable for elec able liquid fires. The carbon di the 5-pound size. The 5-pound portable.

b. Operation. Remove fire e its location; break the seal, ope

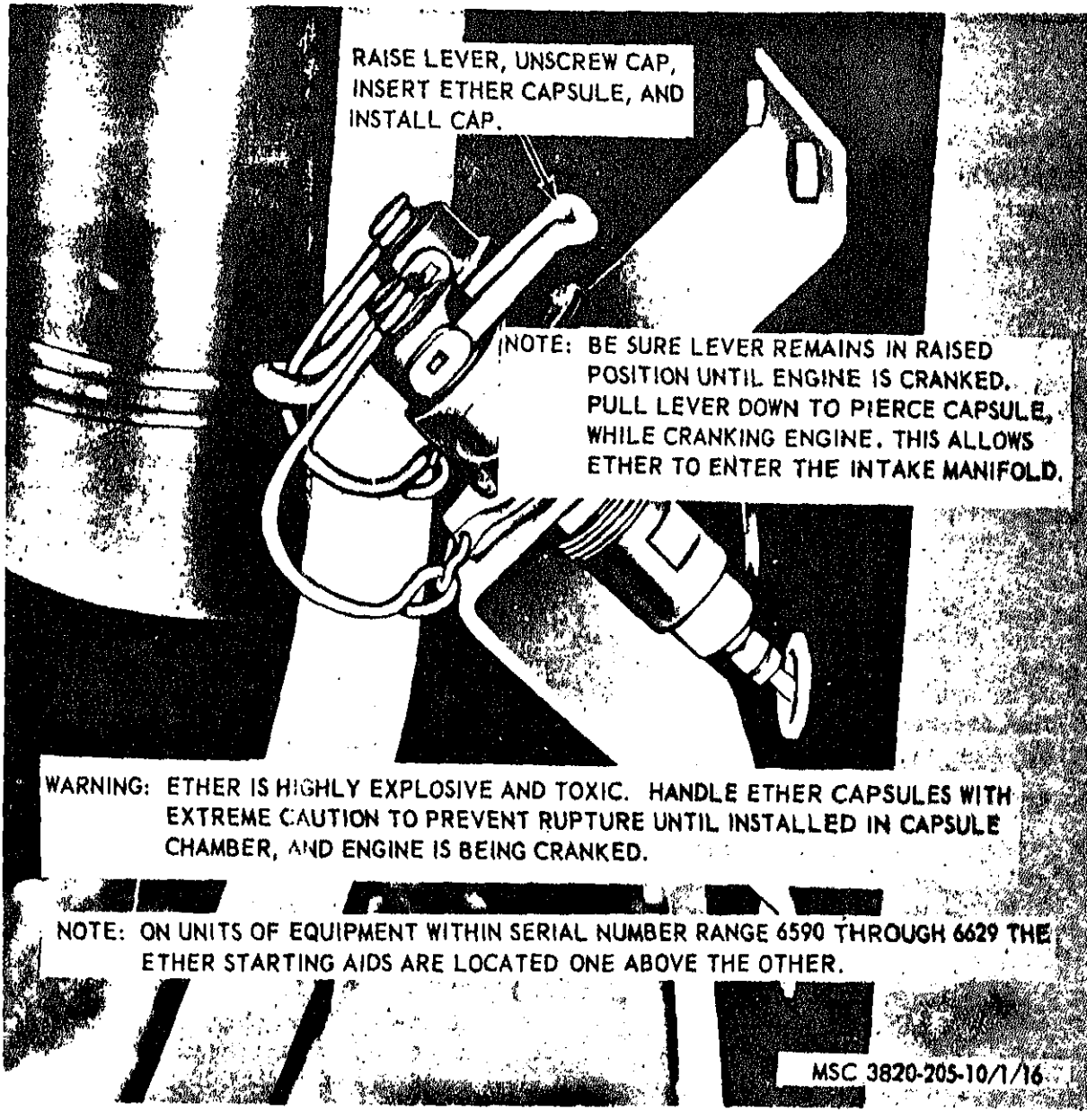


Figure 16. Pressure primer instructions.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Section I. OPERATOR'S TOOLS AND EQUIPMENT

24. Special Tools and Equipment

No special tools or equipment is required by the operator for the maintenance of this roll crusher.

25. Basic Issue Tools and Equi

Tools and repair parts issued w
ized for the roll crusher are listed
items list, appendix II of this man

Section II. LUBRICATION

26. General Lubrication Information

a. This section contains a reproduction of the lubrication order and lubrication instructions which are supplemental to and not specifically covered in the lubrication order.

b. The lubrication order shown on figure 17 is an exact reproduction of the approved lubrication order for the roll crusher. For the current lubrication order, always refer to DA Pam 310–4.

27. Detailed Lubrication Information

a. Care of Lubricants.

(1) *General.* The primary function of a lubricant is to decrease the rate of wear, and to maintain the efficiency of a machine, by reducing friction between the moving parts and by dissipating frictional heat. If a lubricant is contaminated with dust, dirt, or water, it cannot perform its function. Every precaution must be taken to protect lubricants from contamination.

(2) *Storage.* Keep all lubricants and lubrication equipment in airtight containers. Lubricati

(3) *Handling.* Whenever possi
lubrication operations in
place. Clean the oil cans
containers before they are
protect them from dust
covers are removed. Clean
equipment with approved
vent and carefully dry be
and before and after use.

b. Points of Application. Follow
instructions for each lubrication
trated in LO 5–3820–205–20/1–1 (fig
ply the proper lubricant as indicated

Note. Before lubrication, clean all lubric
of lubrication, and areas around these poi
approved cleaning solvent. Do not use gasc
purpose. Dry thoroughly with lint-free
applying lubricants. Reclean after lubricat

c. OES Lubricating Oil.

(1) The crankcase oil level
checked frequently as oil co
may increase.

(2) The oil may require chan
quently because contaminati
lution and sludge formation
crease during cold weather o

d. Oil Filter Assembl

CRUSHER, ROLL: DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED, PNEUMATIC TIRES; 75 TON PER HOUR (EAGLE CRUSHER MODEL 5230B) W/ENGINE, CONTINENTAL MODEL SD 802

Reference: LO 5-3820-205-20/1-2 and -3, SM 10-1-C4-1

Intervals are based on normal hours of operations. Reduce to compensate for abnormal operations and severe conditions. During inactive periods, sufficient lubrication must be performed for adequate preservation.

Clean fittings before lubricating.

Relubricate after washing or fording.

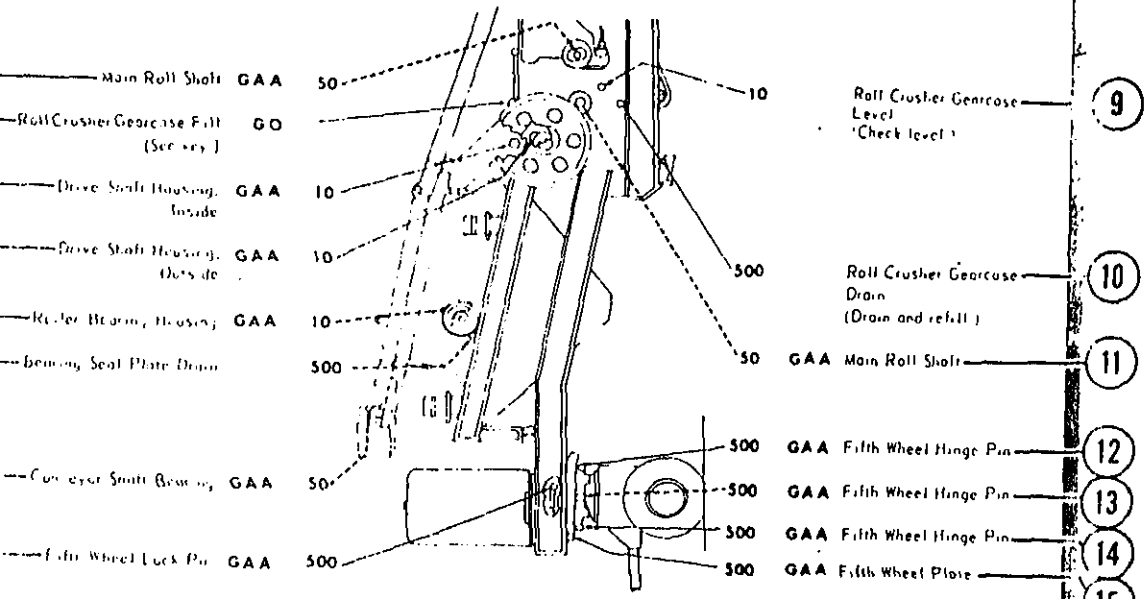
Clean parts with SOLVENT, dry-cleaning, or with OIL, fuel, Diesel. Dry before lubricating.

Lubricate points indicated by dotted arrow shafts on both sides of equipment.

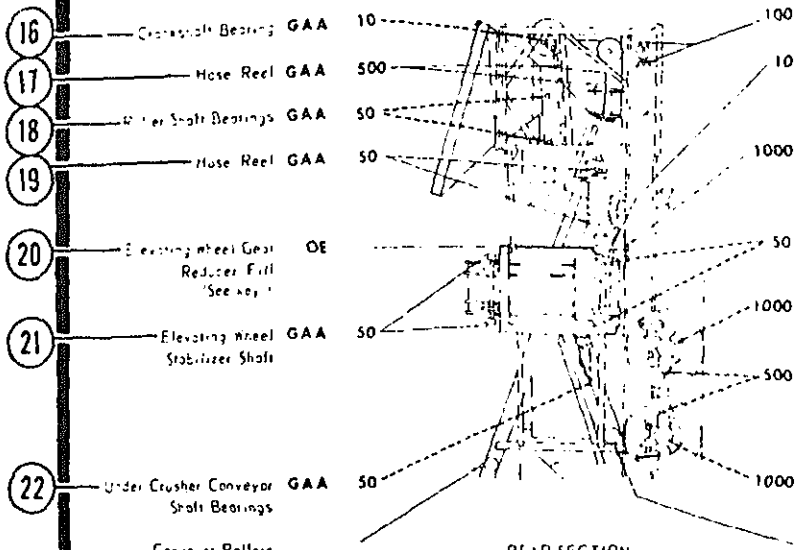
Drain gearcase when hot. Fill and check level.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



FRONT SECTION
LEFT SIDE



- KEY -

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTE
		Above +32°F	+40°F to -10°F	0°F to -65°F	
OE - OIL, Engine, Heavy Duty					
Oil Can Points		OE 30 or 9250	OE 10 or 9110	OES	Inter
Elevating wheel Gear Reducer	2qt				spec
OES - OIL, Engine, Sub-zero					in ho
GO - LUBRICATING OIL, Gear					ar
Roll Crusher Gearcase	2qt	GO 140	GO 90	GOS	oper
GOS - LUBRICATING OIL, Gear, Sub-zero					
GAA - GREASE, Automotive and Artillery		All Temperatures			

NOTES

1 FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -10°F. Remove lubricants prescribed in the key for temperatures above -10°F. Clean parts with SOLVENT, dry-cleaning. Relubricate with lubricants specified in the key for temperatures below -10°F.

2 WHEEL BEARINGS. Every 1000 hours remove wheels, clean and inspect all parts, replace damaged or worn parts, repack bearings, and reassemble.

3 OIL CAN POINTS. Every 50 hours lubricate linkage pins, clevises, and all exposed adjusting threads with OE, including leveling jacks as needed.

Copy of this Lubrication Order will remain with the
at all times. Instructions contained herein are mandat

BY ORDER OF THE SECRETARY OF THE ARMY

G. H. DECKER
General, United Sta
Chief of Staff

OFFICIAL
J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

CRUSHER, ROLL: DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED, PNEUMATIC TIRES; 75 TON PER HOUR (EAGLE CRUSHER MODEL 5230B) W/ENGINE CONTINENTAL MODEL SD 802

References: LO 5-3820-205-20/1-1 and -3, TM 5-3820-205-10/1, C 9100-SL

Intervals are based on normal hours of operations. Reduce to compensate for abnormal operations and severe conditions. During inactive periods sufficient lubrication must be performed for adequate preservation.

Clean fittings before lubricating.

Relubricate after washing or fording.

Clean parts with SOLVENT, dry-cleaning, or with OIL, fuel, Diesel. Dry before lubricating.

Lubricate points indicated by dotted arrow shafts on both sides of equipment.

Drain gearcase when hot. Fill and check level.

FOLD

FOLD

LUBRICANT • INTERVAL

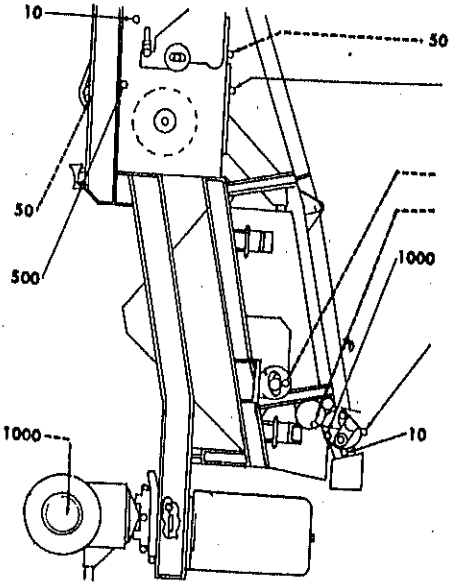
INTERVAL • LUBRICANT

30 — Roll Crusher Gearcase Level (Check level.) — 10

31 — Under Crusher Conveyor Shaft Bearing — GAA — 50

32 — Roll Crusher Gearcase Drain (Drain and refill.) — 500

33 — Wheel Bearings — GAA (See note 2.) — 1000



50 — GAA Pressure Arm Shaft — 34

GO Roll Crusher Gearcase Fill (See Key.) — 35

GAA Vibrating Screen Motor (See note 4.) — 36

GAA Conveyor Motor (See note 4.) — 37

1000 — Upper Conveyor Gear Reducer Drain (Drain and refill.) — 38

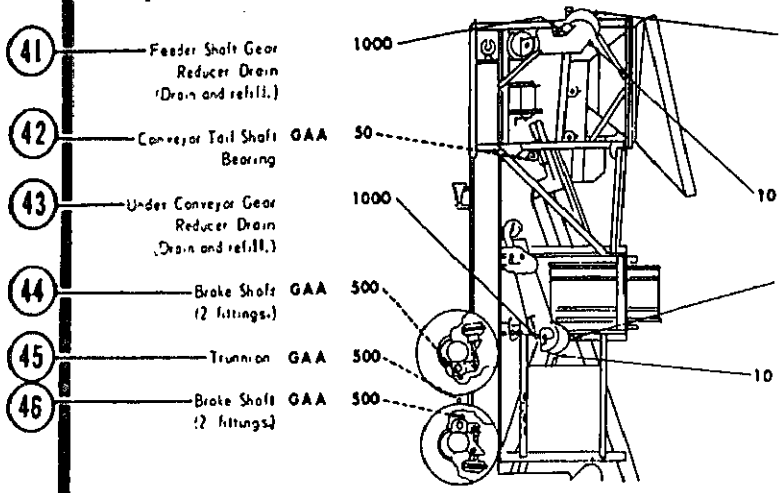
OE Upper Conveyor Gear Reducer Fill (See Key.) — 39

10 — Upper Conveyor Gear Reducer Level (Check level.) — 40

FRONT SECTION

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



REAR SECTION
RIGHT SIDE

FOLD

FOLD

— KEY —

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F	+40°F to -10°F	0°F to -65°F	
OE - OIL, Engine, Heavy Duty					
Oil Can Points					
Upper Conveyor Gear Reducer	5 qt	OE 30 or 9250	OE 10 or 9110	OES	Intervals given are in hours of normal operation.
Under Conveyor Gear Reducer	4 qt				
Feeder Shaft Gear Reducer	2 qt				
OES - OIL, Engine, Sub-zero					
GO - LUBRICATING OIL, Gear					
Roll Crusher Gearcase	50 qt	GO 140	GO 90	GOS	
GOS - LUBRICATING OIL, Gear, Sub-zero					
GAA - GREASE, Automotive and Artillery		All Temperatures			

NOTES

1. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -10°F. Remove lubricants prescribed in the key for temperatures above -10°F. Clean parts with SOLVENT, dry-cleaning. Relubricate with lubricants specified in the key for temperatures below -10°F.

2. WHEEL BEARINGS. Every 1000 hours remove wheels, clean and inspect all parts, replace damaged or worn parts, repack bearings, and reassemble.

3. OIL CAN POINTS. Every 50 hours lubricate linkage pins, clevises, and all exposed adjusting threads with OE, including leveling jacks as needed.

4. ALL MOTOR BEARINGS. Remove fittings, install plugs, be lubricated only at time of disassembly by 3rd echelon.

Copy of this Lubrication Order will remain with the equipm at all times; instructions contained herein are mandatory.

BY ORDER OF THE SECRETARY OF THE ARMY:

EARLE G. WHEELER,
General, United States Arm
Chief of Staff.

OFFICIAL:

J. C. LAMBERT,
Major General, United States Army

CRUSHER, ROLL: DIESEL AND ELECTRIC DRIVEN; WHEEL MOUNTED, PNEUMATIC TIRES; 75 TON PER HOUR (EAGLE CRUSHER MODEL 5230B) W/ENGINE CONTINENTAL MODEL SD 802

Reference: LO 5-3820-205-20/1-1 and -2, SM 10-1-C4-1

Intervals are based on normal hours of operations. Reduce to compensate for abnormal operations and severe conditions. During inactive periods sufficient lubrication must be performed for adequate preservation.

Clean fittings before lubricating.

Relubricate after washing or fording.

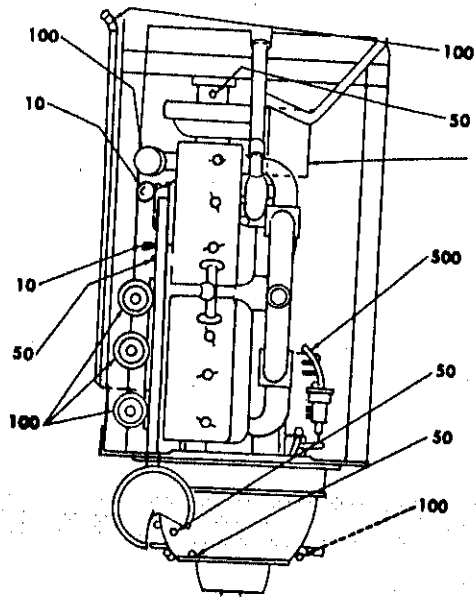
Clean parts with SOLVENT, dry-cleaning, or with OIL, fuel, Diesel. Dry before lubricating.

Lubricate points indicated by dotted arrow shafts on both sides of equipment.

Drain crankcase only when hot after operation; replenish and check level when cool.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



51 Crankcase Fill (See Key.) — OE 100

52 Crankcase Breather (Refill oil reservoir to level mark; every 50 hours disassemble entire unit, clean, re-oil, and reassemble.) (See Key.) (See Note 3.) — OE 10

53 Crankcase Level Gage (Check level.) — 10

54 Tachometer Drive (Sparingly) — GAA 50

55 Oil Filter (Disassemble, clean housings, renew elements, and reassemble.) (See Note 2.) — 100

56 Crankcase Drain (Drain and refill.) — 100

57 GAA Water Pump — 50

Generator (Sealed bearings; no lubrication required.)

58 Starter (Sparingly) — OE 500

59 GAA Clutch Throwout Bearing (Sparingly) — 50

60 GAA Clutch Shaft Bearing (Sparingly) — 50

61 GAA Clutch Release Shaft — 100

-- KEY --

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVAL
		Above +32°F	+40°F to -10°F	0°F to -65°F	
OE -OIL, Engine, Heavy Duty					Interval
Crankcase	24 qt	OE 30 or 9250	OE 10 or 9110	OES	given or
Oil Can Points					in hours
OES -Oil., Engine, Sub-zero					normal
GAA -GREASE, Automotive and Artillery		All Temperatures			operation

NOTES

1. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -10°F. Remove lubricants prescribed in the key for temperatures above -10°F. Clean parts with SOLVENT, dry-cleaning. Relubricate with lubricants specified in the key for temperatures below -10°F.

2. OIL FILTERS. After installing new filter elements, fill crankcase, operate engine 5 minutes, check housing for leaks, check crankcase level, and bring to full mark.

3. OIL CAN POINTS. Every 50 hours lubricate throttle and governor linkage, pins and clevises. Fill crankcase breather to level mark with OE.

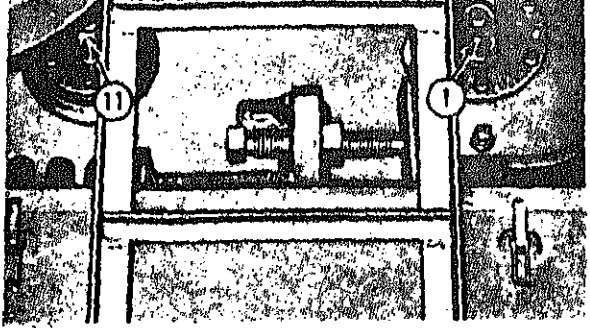
Copy of this Lubrication Order will remain with the eq
at all times, instructions contained herein are mandatory.

BY ORDER OF THE SECRETARY OF THE ARMY:

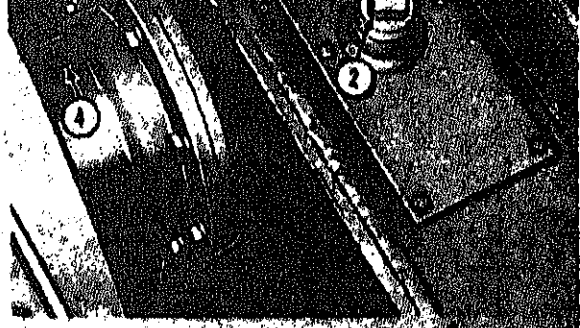
G. H. DECKER,
General, United States
Chief of Staff.

OFFICIAL.

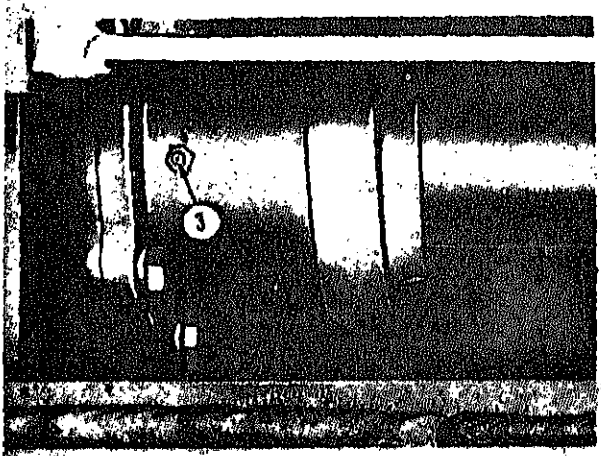
R. V. LEE,
Major General, United States Army,
The Adjutant General.



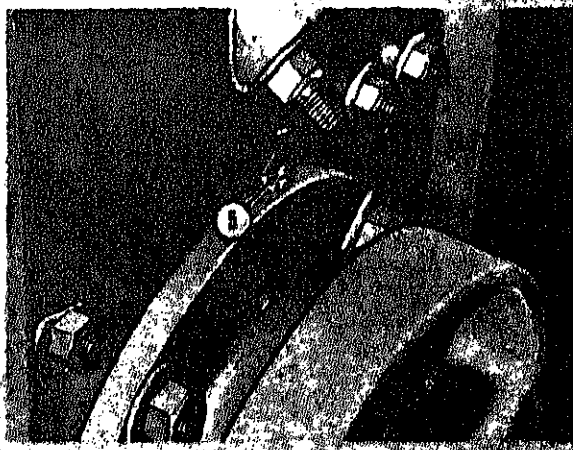
REF. 1 MAIN ROLL SHAFT
REF. 11 MAIN ROLL SHAFT



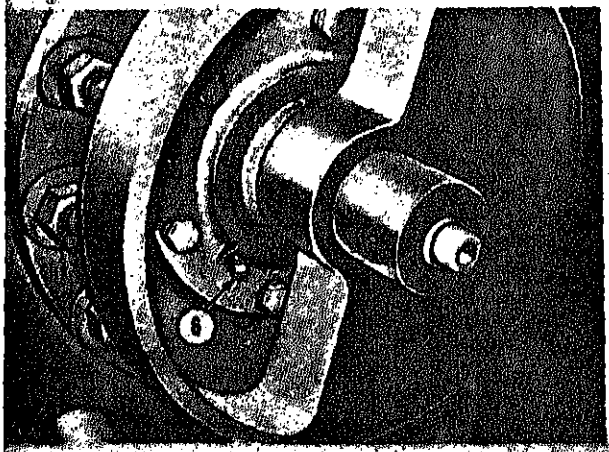
REF. 2 ROLL CRUSHER GEARCASE FILL
REF. 4 DRIVE SHAFT HOUSING, OUTSIDE



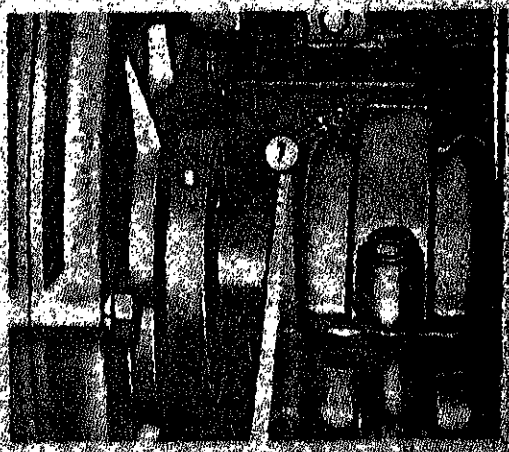
REF. 3 DRIVE SHAFT HOUSING, INSIDE



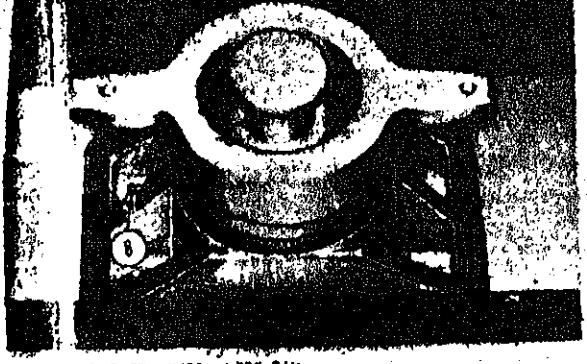
REF. 5 ROLLER BEARING HOUSING



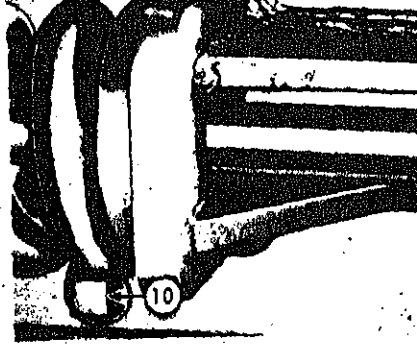
REF. 6 BEARING SEAL PLATE DRAIN



REF. 7 CONVEYOR SHAFT BEARING

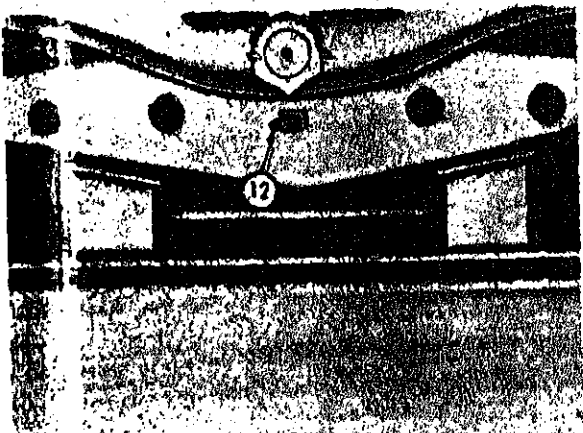


REF.8 FIFTH WHEEL LOCK PIN

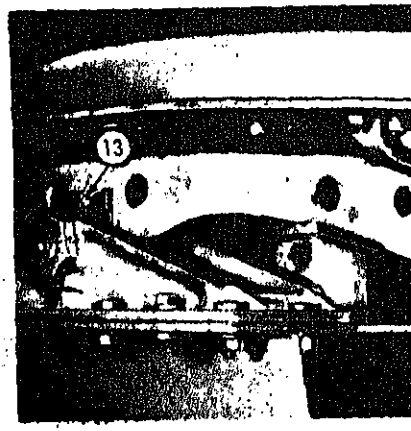


REF.8 ROLL CRUSHER GEARCASE LEVEL

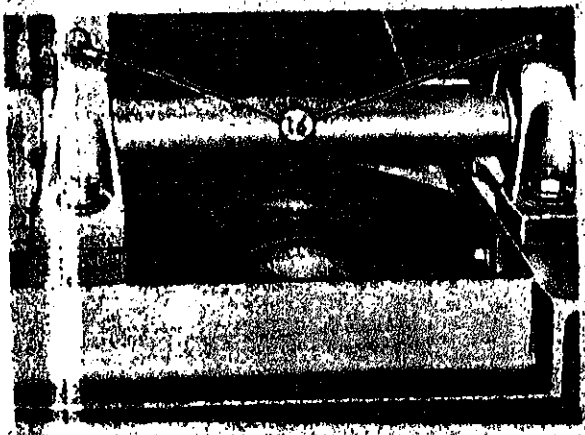
REF.10 ROLL CRUSHER GEARCASE DRAIN



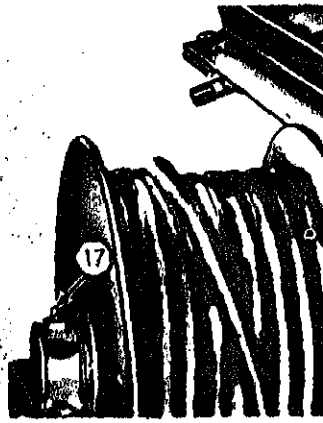
REF.12 FIFTH WHEEL HINGE PIN



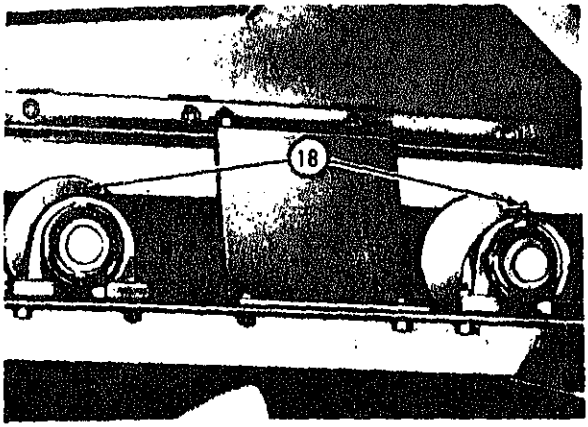
REF.13 FIFTH WHEEL HINGE PIN
REF.14 FIFTH WHEEL HINGE PIN
REF.15 FIFTH WHEEL PLATE



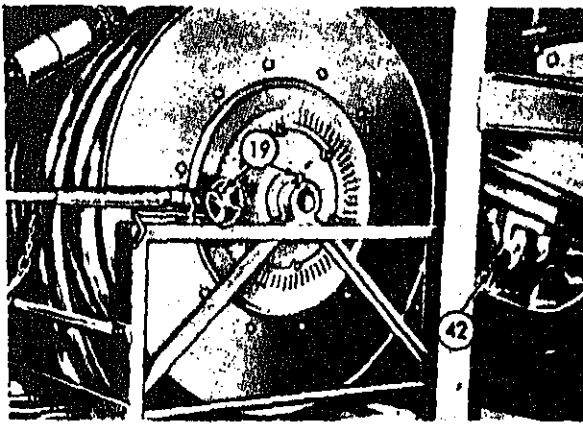
REF.16 CRANKSHAFT BEARING



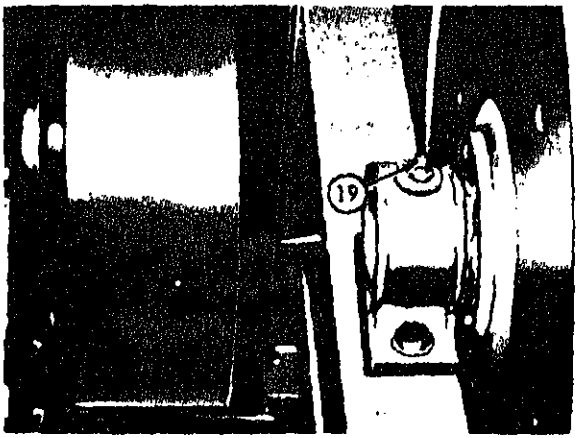
REF.17 HOSE REEL



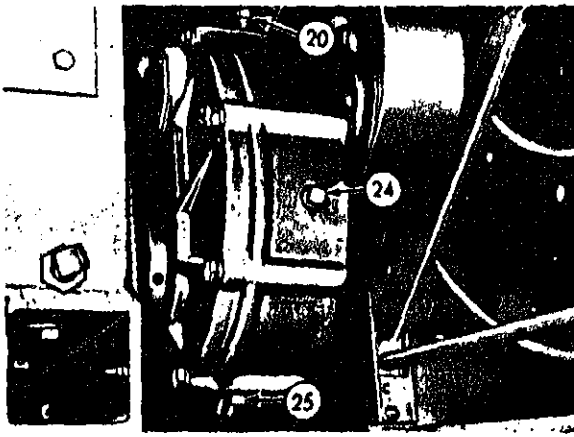
REF. 18 ROLLER SHAFT BEARINGS



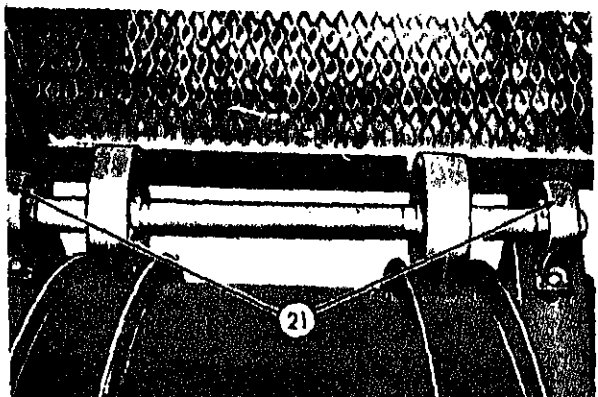
REF.19 HOSE REEL
REF.42 CONVEYOR TAIL SHAFT BEARING

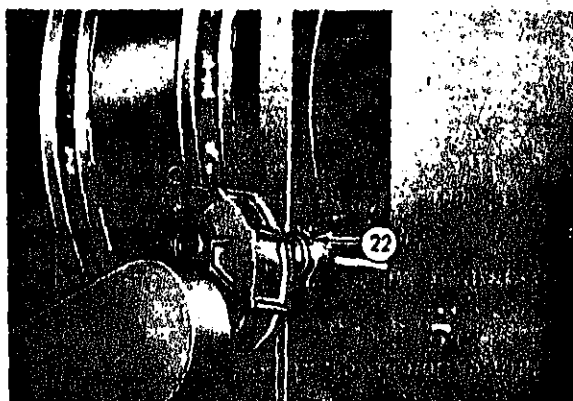


REF.19 HOSE REEL

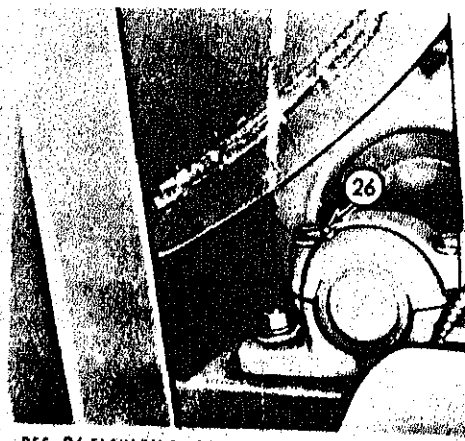


REF.20 ELEVATING WHEEL GEAR REDUCER FILL
REF.24 ELEVATING WHEEL GEAR REDUCER LEVEL
REF.25 ELEVATING WHEEL GEAR REDUCER DRAIN

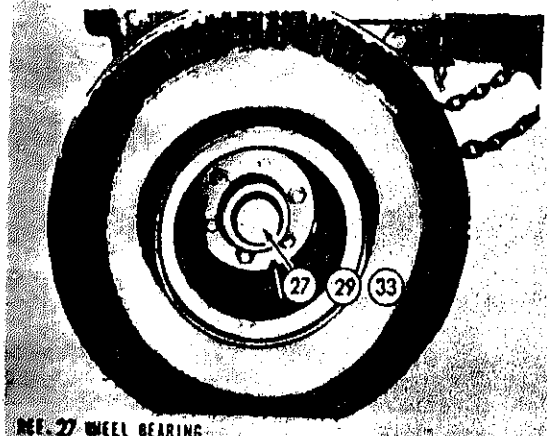




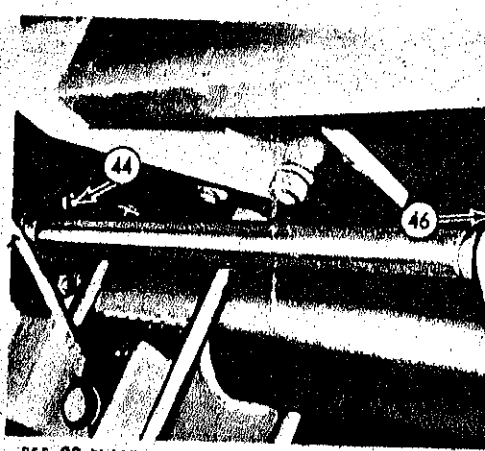
REF. 23 PINTLE HOOK



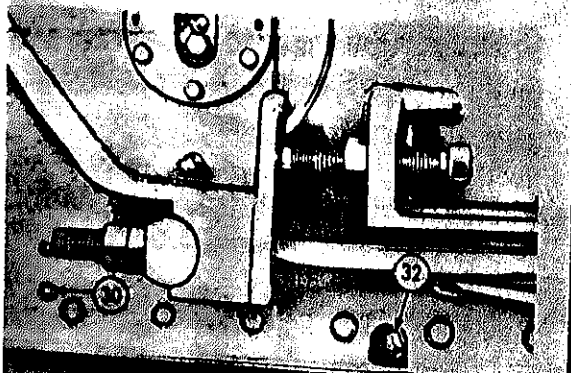
REF. 26 ELEVATING WHEEL TRUNNION SHAFT

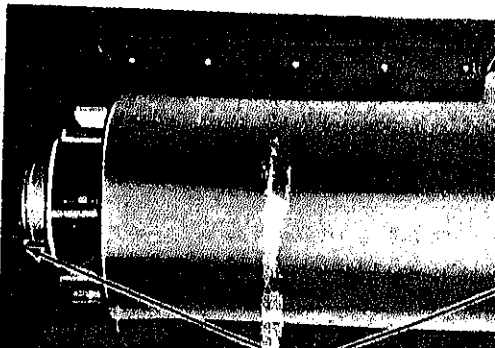


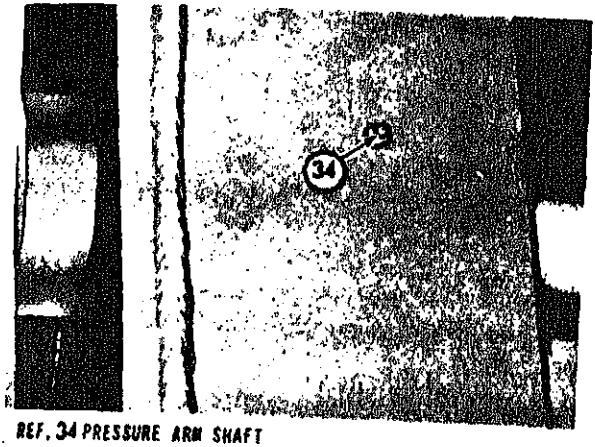
REF. 27 WHEEL BEARING
REF. 29 WHEEL BEARING
REF. 33 WHEEL BEARINGS



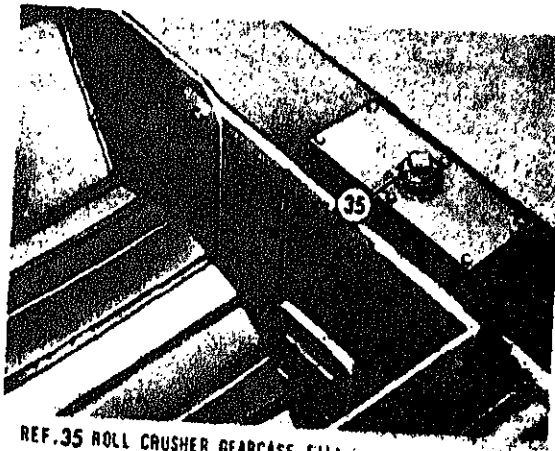
REF. 28 SLACK ADJUSTERS
REF. 44 BRAKE SHAFT
REF. 46 BRAKE SHAFT



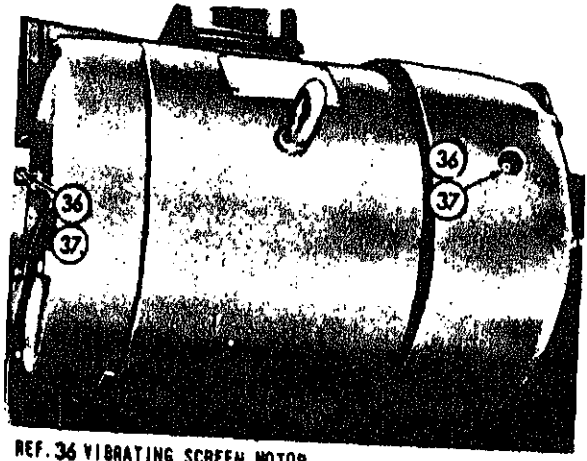




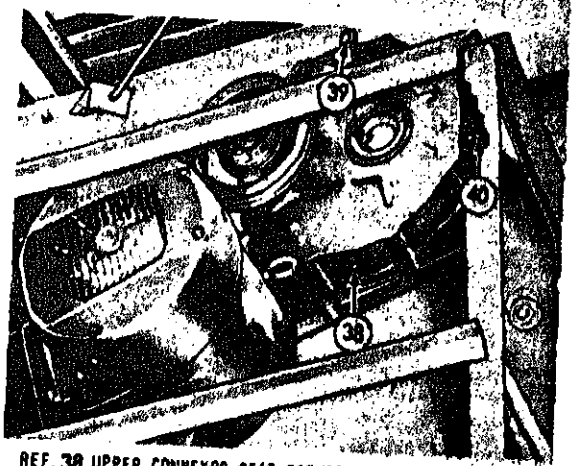
REF. 34 PRESSURE ARM SHAFT



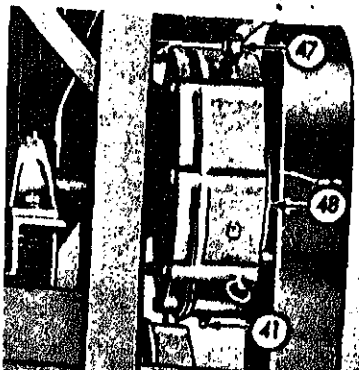
REF. 35 ROLL CRUSHER GEARCASE FILL

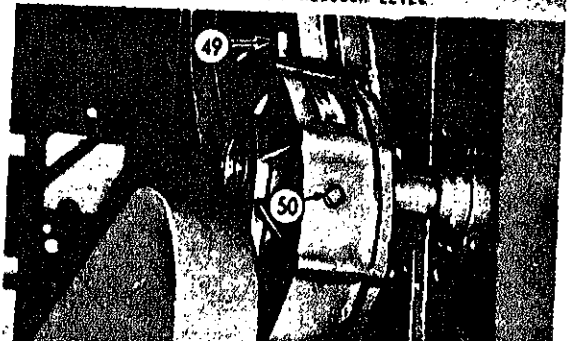


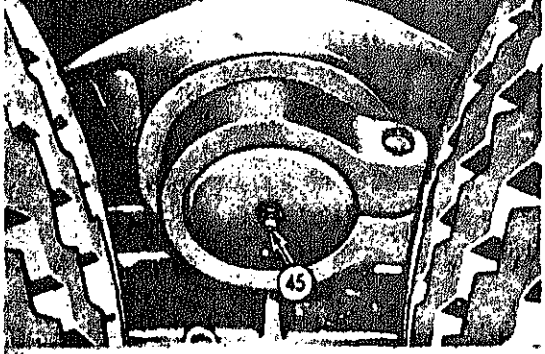
REF. 36 VIBRATING SCREEN MOTOR
REF. 37 CONVEYOR MOTOR



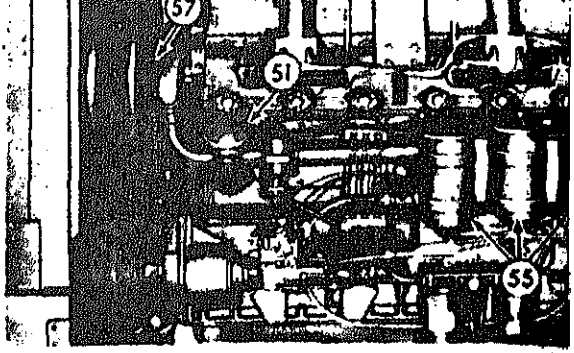
REF. 38 UPPER CONVEYOR GEAR REDUCER DRAIN
REF. 39 UPPER CONVEYOR GEAR REDUCER FILL
REF. 40 UPPER CONVEYOR GEAR REDUCER LEVEL



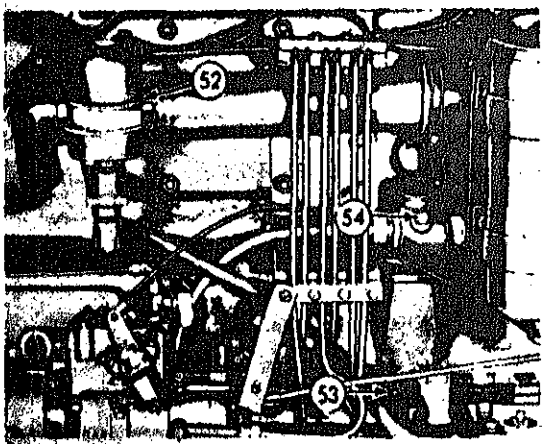




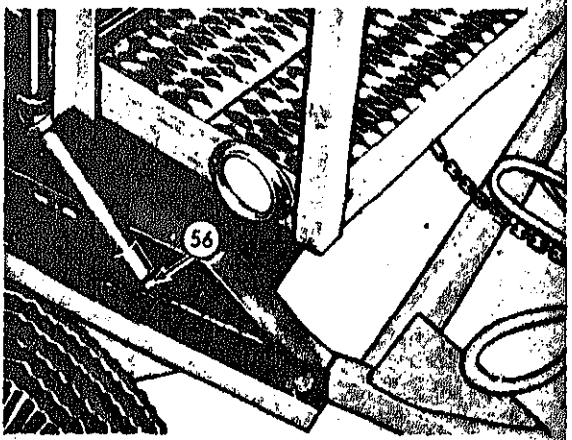
REF 45 TRUNNION



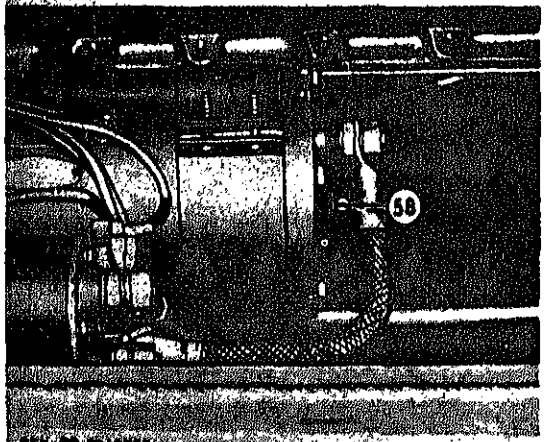
REF 51 CRANKCASE FILL
REF 55 OIL FILTER
REF. 57 WATER PUMP



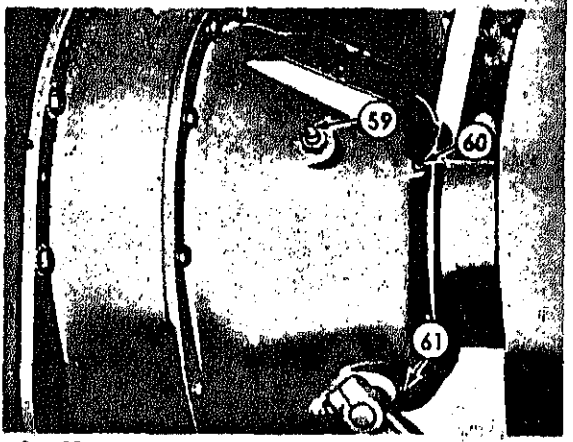
REF. 52 CRANKCASE BREATHER
REF. 53 CRANKCASE LEVEL GAGE
REF. 54 TACHOMETER DRIVE.



REF. 56 CRANKCASE DRAIN



REF. 58 STARTER



REF 59 CLUTCH THROWOUT BEARING
REF. 60 CLUTCH SHAFT BEARING

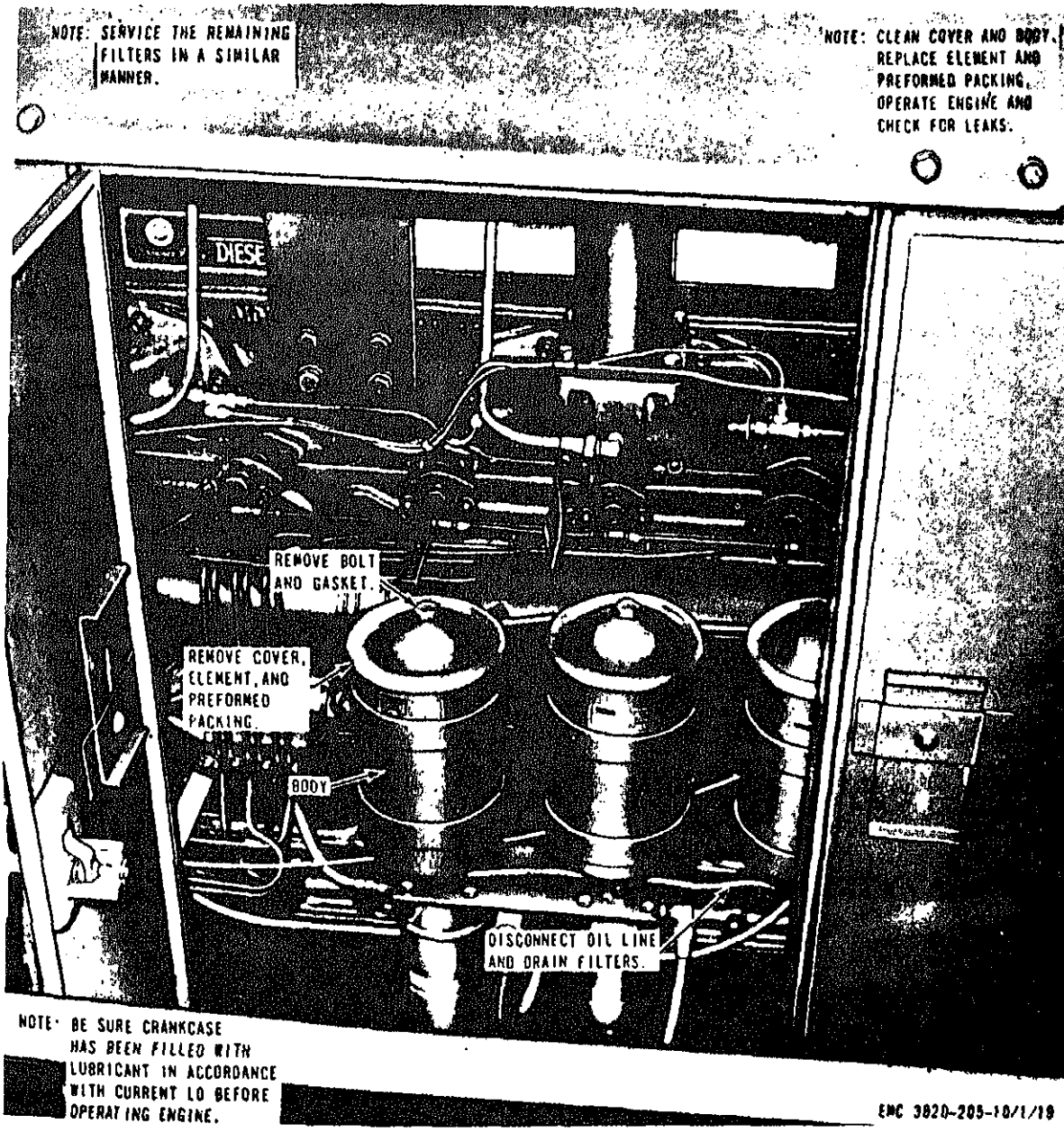


Figure 18. Oil filter assemblies service

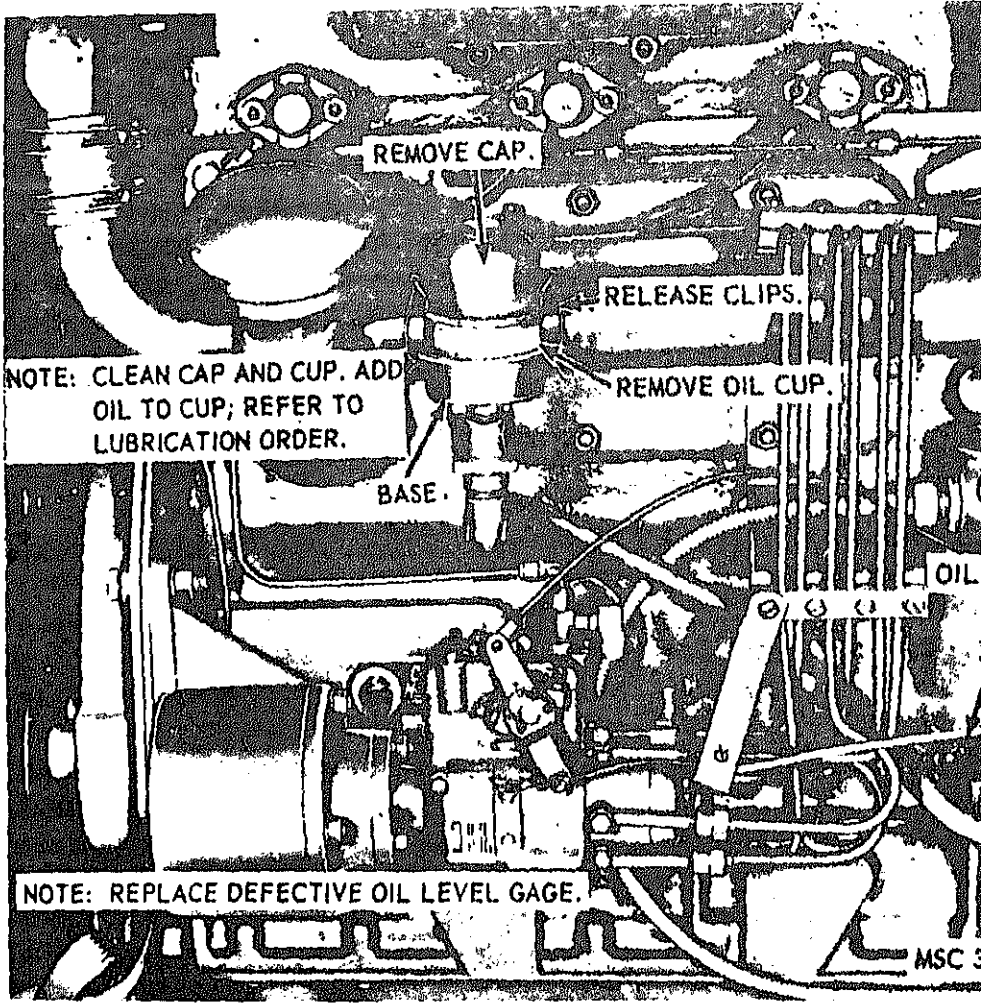


Figure 19. Crankcase breather service.

Section III. PREVENTIVE MAINTENANCE SERVICES

28. General

To insure that the roll crusher is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and

would damage the equipment i
continued. All deficiencies a
will be recorded together wit
action taken on DA Form 2
Inspection and Maintenance W
earliest possible opportunity.

29. Daily Preventive Mainte

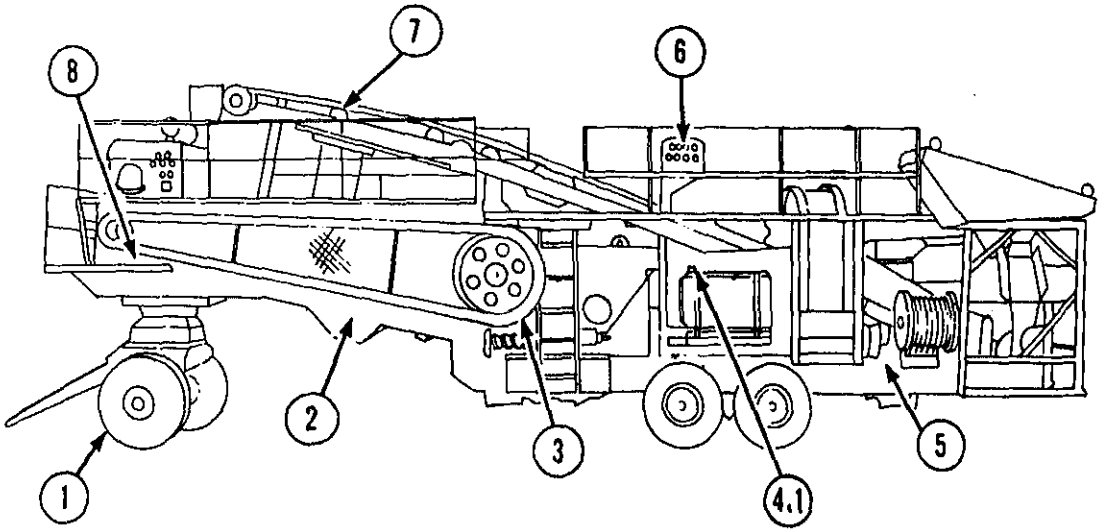
PREVENTIVE MAINTENANCE SERVICES

DAILY

TM 5-3820-205-10/1

ROLL CRUSHER

EAGLE MODEL 5230 B

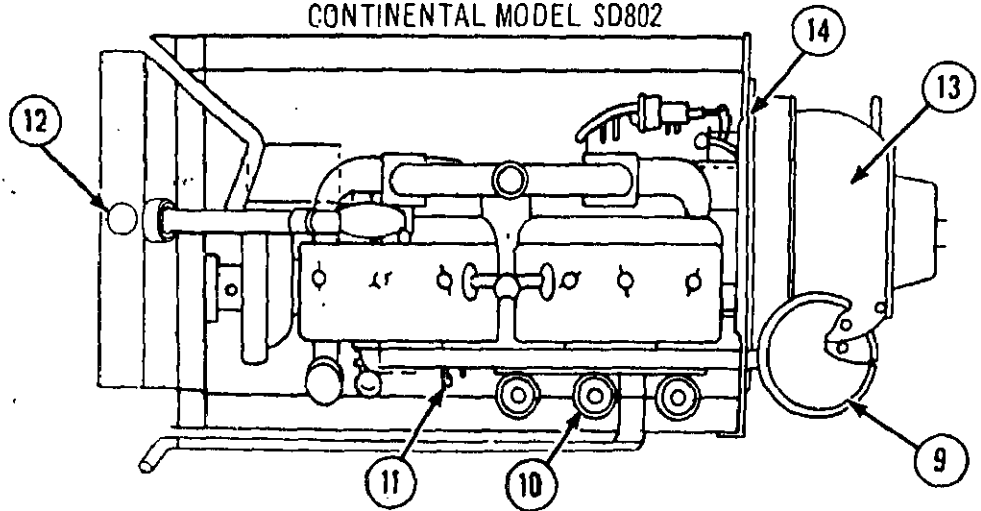


LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER

ITEM		PAR. REF
1	TIRES. Perform visual check for proper inflation. Correct air pressure is 100 psi.	
2	HOPPER AND CHUTES. Check for proper operation. Check liners for excessive wear. Check deflectors for wear and proper adjustment. When hopper is loaded, deflectors should barely touch conveyor belt. (Weekly)	
3	FIRE EXTINGUISHER. Inspect for broken seal.	

ITEM		PAR. R
4.1	FUEL TANK. Check level. Drain sediment from tank. (Biweekly).	
5	AIR SYSTEM. Drain condensation from reservoir and filters after use.	
6	OPERATOR'S ELECTRICAL CONTROL BOX. Check for proper operation. Make sure switches are in correct positions and cables are connected. Make sure ground rod is securely mounted and there are no loose connections Check for tightly sealed box. WARNING: Do not connect electrical power or operate the equipment if the ground connection is not properly installed. Death by electrocution could result from contacting ungrounded equipment should some electrical fault develop in power equipment or lines.	
7	CONVEYOR BELT ASSEMBLIES. Check for excessive wear, frayed condition, proper adjustment, and alinement. Conveyor belt should be adjusted just enough to prevent slipping when loaded. Check rollers for excessive wear, material buildup, and defective bearings. Check belt scrapers for excessive wear and proper adjustment. Adjust belt scrapers so they barely touch conveyor belt. (Weekly)	
8	BATTERIES. Check electrolyte level and hand tightness of connections. Fill to 3/8 inch above filler plates. In freezing weather run the engine one hour after adding water. (Weekly)	

CONTINENTAL MODEL SD802



ITEM		PAR. REF
9	AIR CLEANER. Check to see if red signal is visible.	
10	PRIMARY FUEL FILTER. Drain sediment. (Weekly)	51
11	ENGINE OIL LEVEL. Check oil level. Add oil to proper level.	
12	RADIATOR. Check coolant level. Fill to 2 inches below filler neck.	
13	MASTER CLUTCH. Check for proper operation.	
14	CONTROLS AND INSTRUMENTS. Normal readings are: Coolant temperature — 165°F to 185°F. Engine oil pressure — 55 to 65 psi Battery-generator indicator — Green Range Tachometer — 1,400 RPM	
	NOTE: OPERATION. During operation check all controls for proper operation.	

30. General

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the roll crusher and its components. Each trouble symptom stated is followed by a list of probable causes of th trouble. The possible remedy recommended i described opposite the probable cause. Any op erational trouble that is beyond the scope o the operator or crew must be reported to or ganizational maintenance.

31. Engine Hard To Start, or Fails To Start

Probable cause	*Possible remedy*
Atmospheric temperature low	Use ether starting aids (par. 22).
No fuel in tank	Fill the fuel tank (par. 54).
Dirt, gum, or water in fuel lines or tank	Service the fuel tank (par. 54).
Air trapped in fuel lines	Bleed fuel line (par. 52).
Fuel filters clogged	Clean the primary fuel filter element (par. 51). Replac the secondary fuel filter element (par. 51).
Throttle lever not in the start position	Place throttle lever in the start position.
Cranking speed too low	Report this condition to organizational maintenance.

32. Engine Operates Erratically or Lacks Power

Probable cause	*Possible remedy*
Dirt, gum, or water in fuel	Service fuel tank and lines and fill with clean fu (par. 54).
Air cleaner clogged	Service air cleaner (par. 53).
Fuel filters clogged	Clean the primary fuel filter element (par. 51). Replac the secondary fuel filter element (par. 51).
Air in the fuel system	Bleed fuel lines (par. 52).

33. Exhaust Smokes Excessively

Probable cause	*Possible remedy*
Crankcase oil level too high	Drain oil until proper level is obtained (LO 5-3820 205-20/1-1).
Engine cold causing poor combustion	Report this condition to organizational maintenance.
Engine overloaded	Reduce load on engine.
Air cleaner clogged	Service air cleaner (par. 53).

34. Engine Overheats

Probable cause	*Possible remedy*
Coolant level low	Fill radiator to proper level (par. 56).
Fan belts loose	Tighten fan belts (par. 57).
Exhaust restricted	Remove restriction or report to organizational maint nance.
Engine overloaded	Reduce load on engine.
Water pump faulty	Report this condition to organizational maintenance.

35. Engine Knocks or Develops Unusual Noise

Probable cause	*Possible remedy*
Accessory mountings loose	Tighten mountings or report to organizational maint nance.
Crankcase oil supply low	Stop engine and check oil supply. Replenish oil a

Probable cause	Possible remedy
Air trapped in fuel lines	Bleed fuel lines (par. 52).
Engine overheated (safety control operated)	Inspect the coolant level (par. 56), and fan belt ad ment (par. 57), and radiator for obstructions.
Restriction in air intake	Service the air cleaner (par. 53).
Oil pressure low (safety control operated)	Check the oil level in the crankcase. Replenish if (LO 5-3820-205-20/1-1).

37. Conveyor Does Not Run Properly or Will Not Run

Probable cause	Possible remedy
Too much slack in drive belts	Adjust conveyor drive belts (pars. 70 and 76).
Circuit breaker tripped	Correct the cause of overload and reset the ci breaker.
Grease on drive sheave or belt	Clean grease off belt or drive sheave with appr cleaning solvent.

38. Crusher Rolls Do Not Turn or Come Up To Normal Speed

Probable cause	Possible remedy
Roll drive belts slipping due to dirt or grease on belts and pulleys.	Clean crusher rolls drive belts and pulley.
Engine clutch slips	Adjust clutch (par. 63).

39. Screen Vibrates Excessively

Probable cause	Possible remedy
Loose rubber mounts	Tighten mounting hardware for rubber mounts.
Motor drive belts slipping	Adjust drive belts (par. 67).

40. Screen Will Not Vibrate

Probable cause	Possible remedy
Drive belts slipping	Adjust drive belts (par. 67).
Circuit breaker tripped	Correct the cause of overload and reset circuit brea

41. Feeder Will Not Operate or Works Slowly

Probable cause	Possible remedy
Drive belts slipping	Adjust drive belts (par. 70).
Circuit breaker tripped	Correct the cause of overload and reset circuit brea

42. Rotary Elevator Will Not Turn or Turns at Low Speed

Probable cause	Possible remedy
Drive belts slipping	Adjust drive belts (par. 72).
Circuit breaker tripped	Correct the cause of overload and reset circuit brea

43. Electric Motors Will Not Run

Probable cause	Possible remedy
Main circuit breaker tripped	Correct cause of emergency and reset main ci breaker.
Voltage source fluctuating	Check power source for proper voltage (par. 81)

Upon the decision of the unit commander during emergencies, the following expedient repairs may be used to correct temporary operational troubles in the field where supplies and repair parts for normal corrective maintenance are not available. Equipment so repaired be removed from operation as soon as po and properly repaired before being plac operation again.

46. Engine Gradually Loses Power

Trouble	*Expedient remedy*
Fuel filters clogged	Discard the fuel filters and operate the engine w filters until replacements are available.

47. Engine Overheats or Runs Cold

Trouble	*Expedient remedy*
Coolant thermostat defective	Remove defective thermostat and operate engine replacement is available.

48. Less of Lubricating Oil

Trouble	*Expedient remedy*
Small hole in crankcase oil pan	Plug hole with wooden plug or metal screw.
Damaged oil line	Tape or wrap the oil line with a suitable material a new oil line can be installed.

49. Loss of Fuel

Trouble	*Expedient remedy*
Hole in fuel tank	Plug hole with wooden plug or metal screw.
Fuel line damaged	Tape or wrap fuel line with a suitable material unt new fuel line can be installed.

Section VI. FUEL SYSTEM

50. General

The engine fuel system consists of a 100-gallon fuel tank, fuel lines and fittings, primary fuel filter, primer pump, secondary fuel filter, fuel injector pump, and six fuel injectors.

51. Primary and Secondary Fuel Filters Service

Service the primary and secondary fuel filers as instructed on figure 21.

Note. Service the fuel filters weekly.

52. Bleeding the Fuel System

Bleed the fuel system in the sequence as instructed on figure 22.

53. Air Cleaner Service

Service the air cleaner as instructed on figu 23.

54. Fuel Tank and Strainer Service

Service the fuel tank and strainer as in structed on figure 24.

Caution: The manual control fording valv located inside the fuel tank cap is closed before shipment is made from contractor's plant. For proper ventilation of fuel tank, valve must be opened when crusher is in operation.

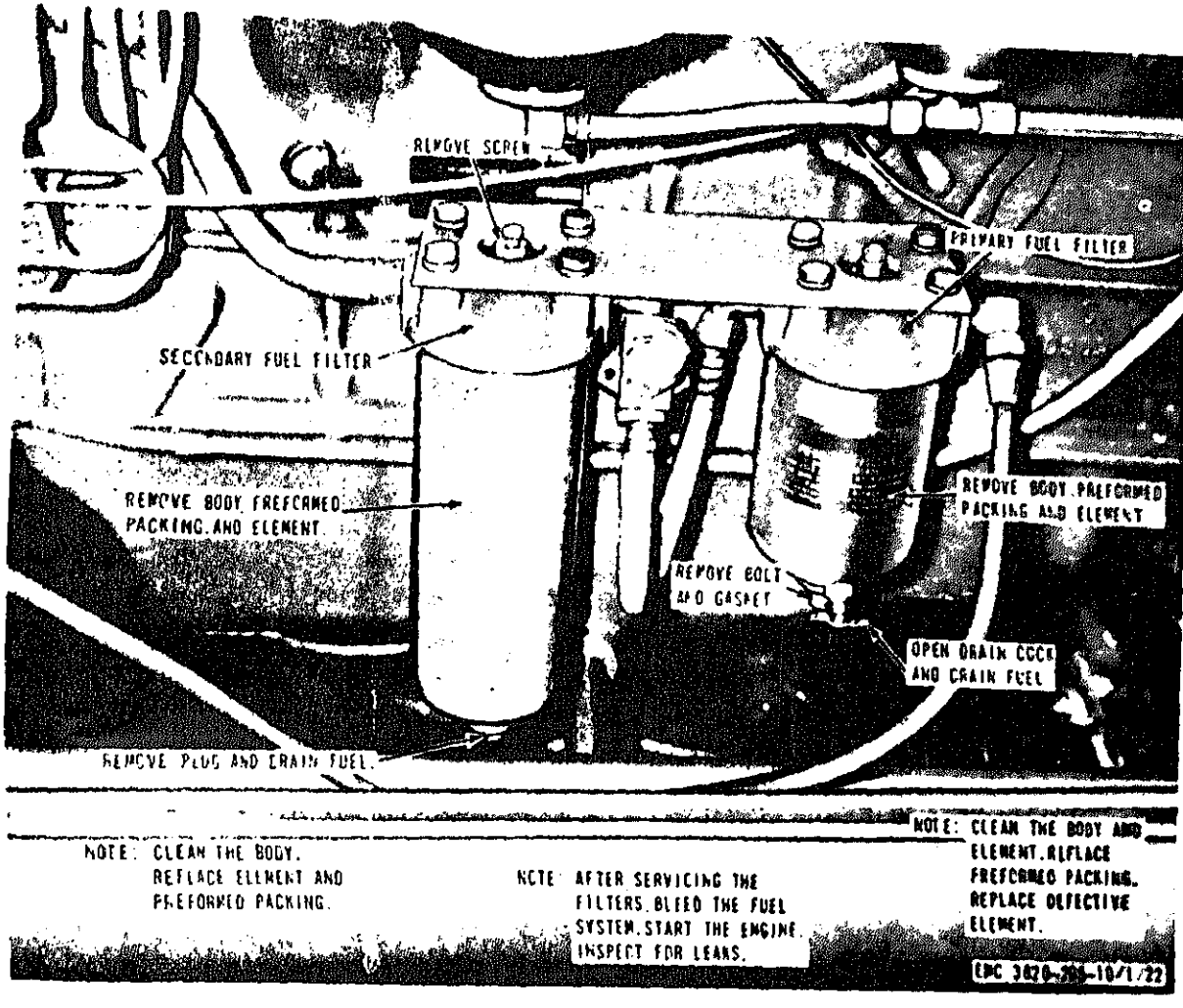


Figure 21. Primary and secondary fuel filters service.

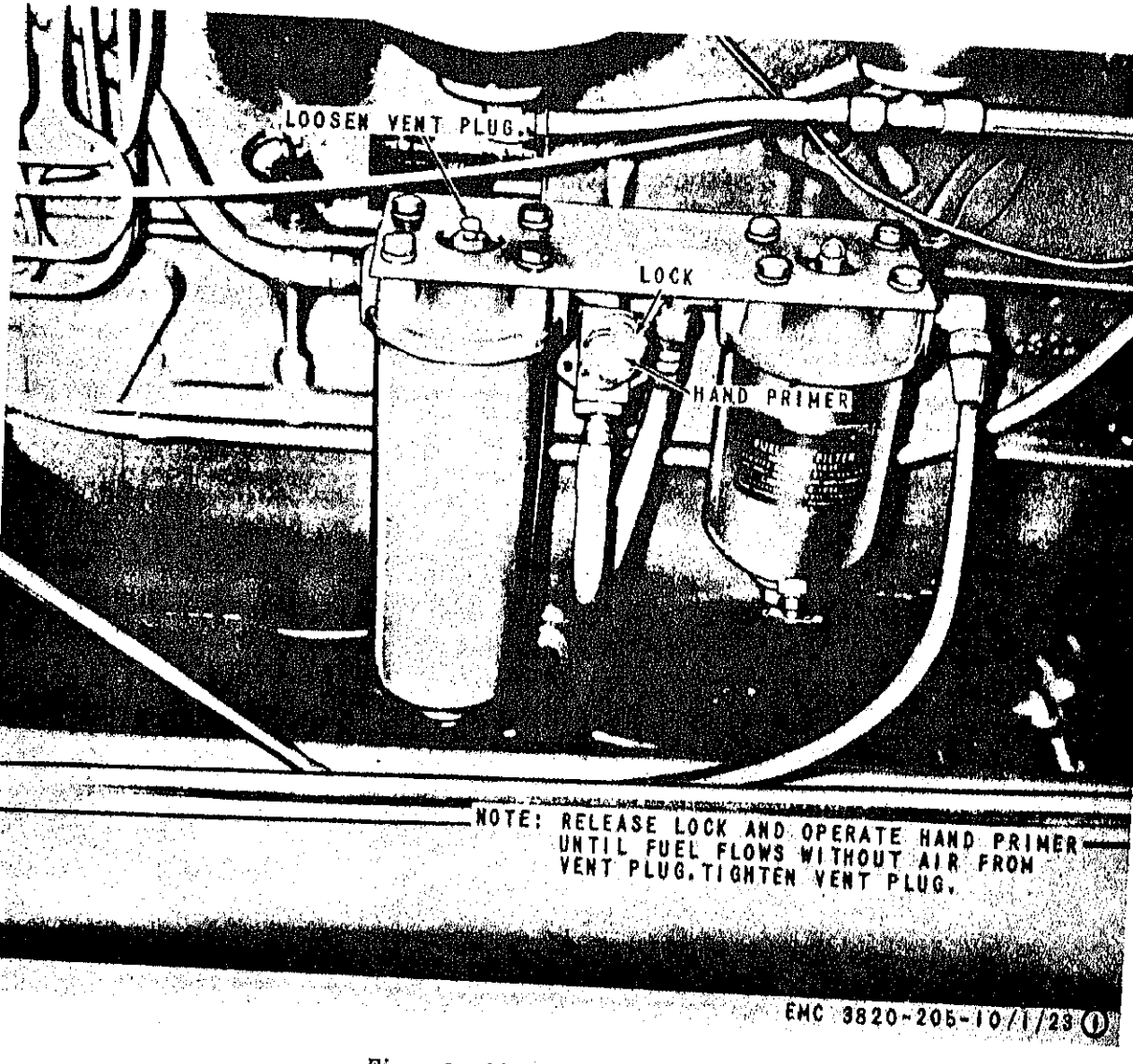


Figure 22. Bleeding the fuel system.

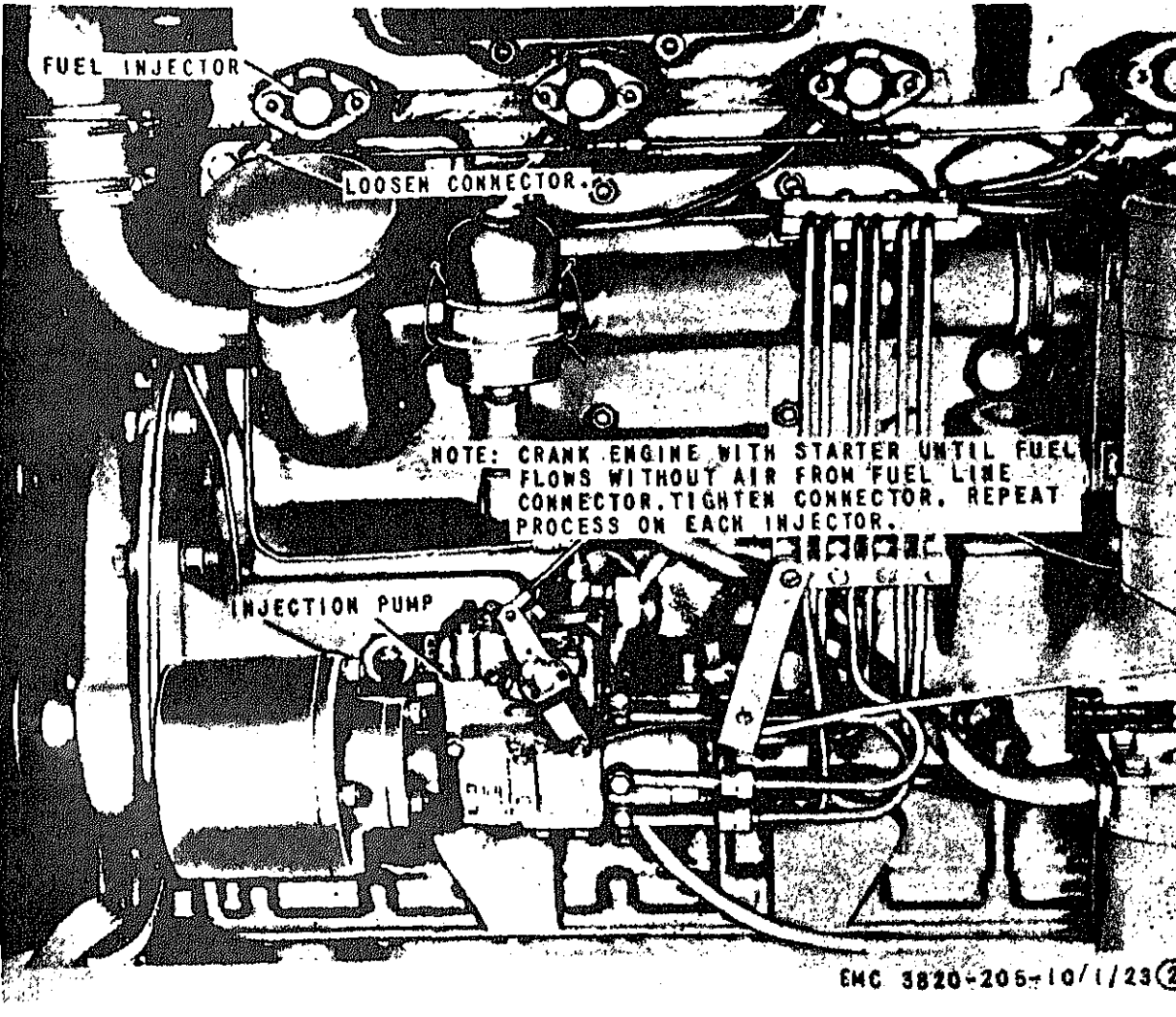


Figure 22—Continued.

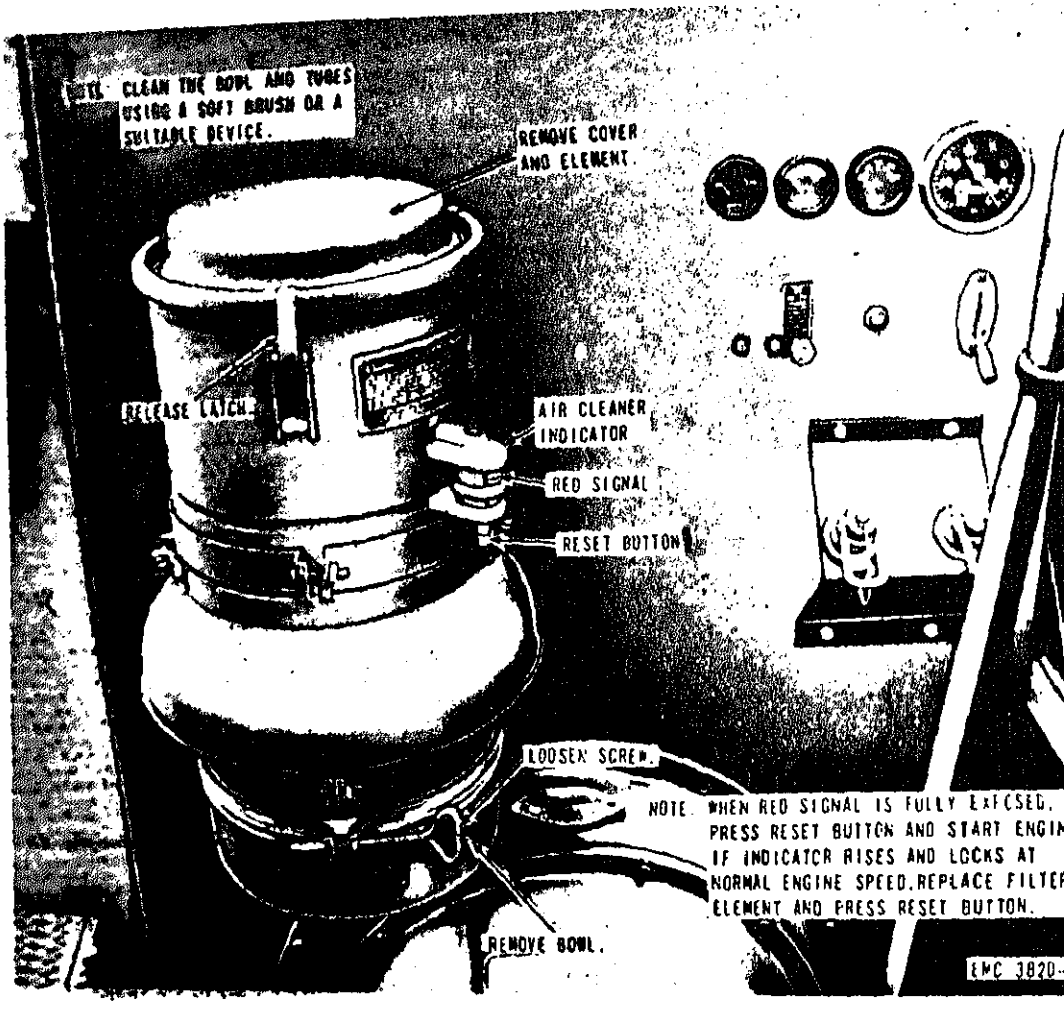
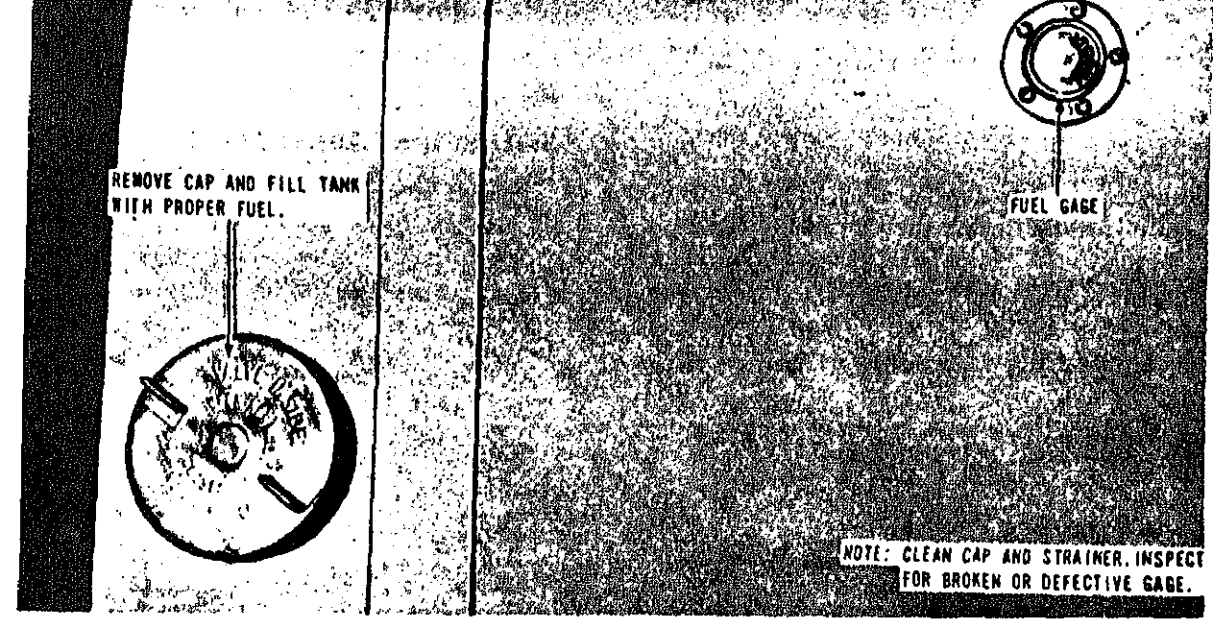
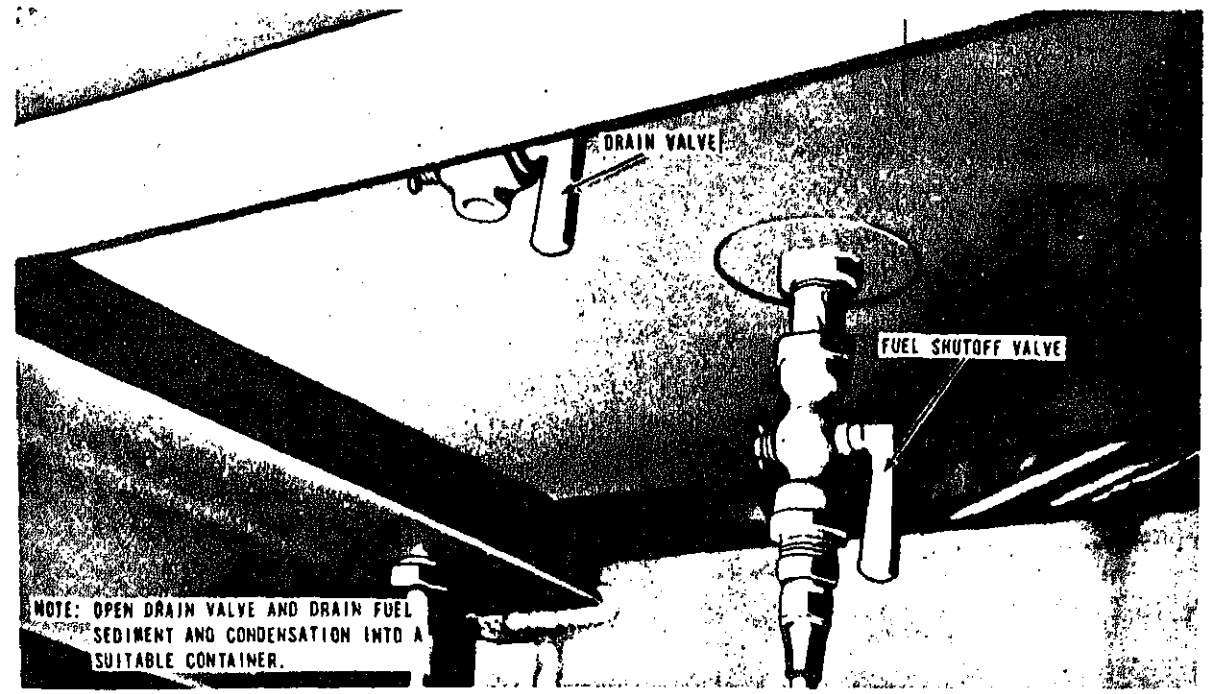


Figure 23. Air cleaner service.


REMOVE CAP AND FILL TANK WITH PROPER FUEL.
FUEL GAGE
NOTE: CLEAN CAP AND STRAINER. INSPECT FOR BROKEN OR DEFECTIVE GAGE.

A


DRAIN VALVE
FUEL SHUTOFF VALVE
NOTE: OPEN DRAIN VALVE AND DRAIN FUEL SEDIMENT AND CONDENSATION INTO A SUITABLE CONTAINER.

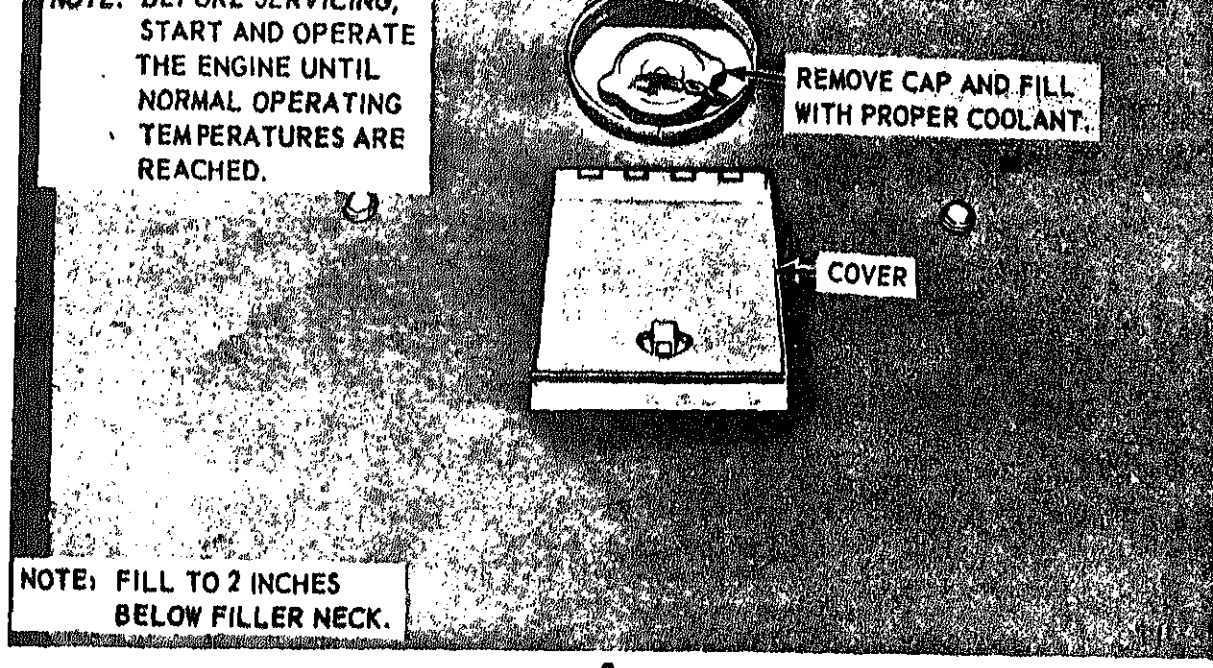
B

The liquid cooling system consists of the radiator, hoses, lines, fittings, water pump, fan, and coolant passages in the engine cylinder heads and block. The coolant temperature is regulated from 165° to 185° F. by two thermostats located inside the thermostat housing.

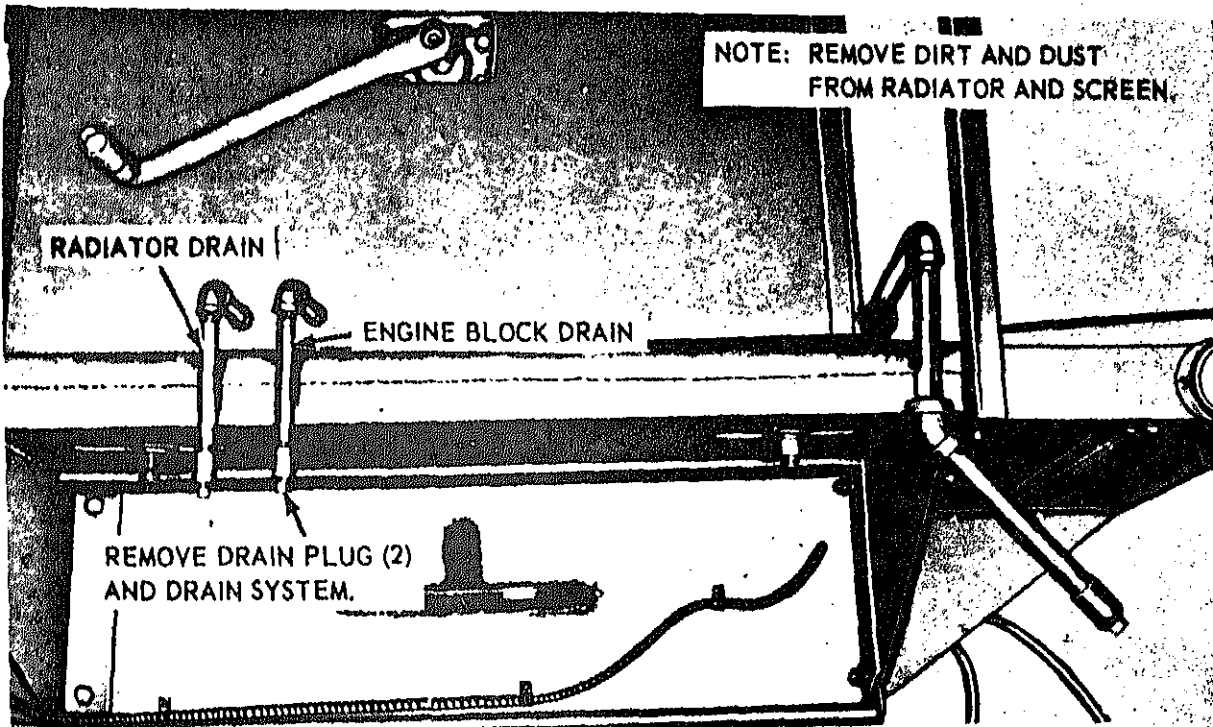
Service the radiator as instructed 25.

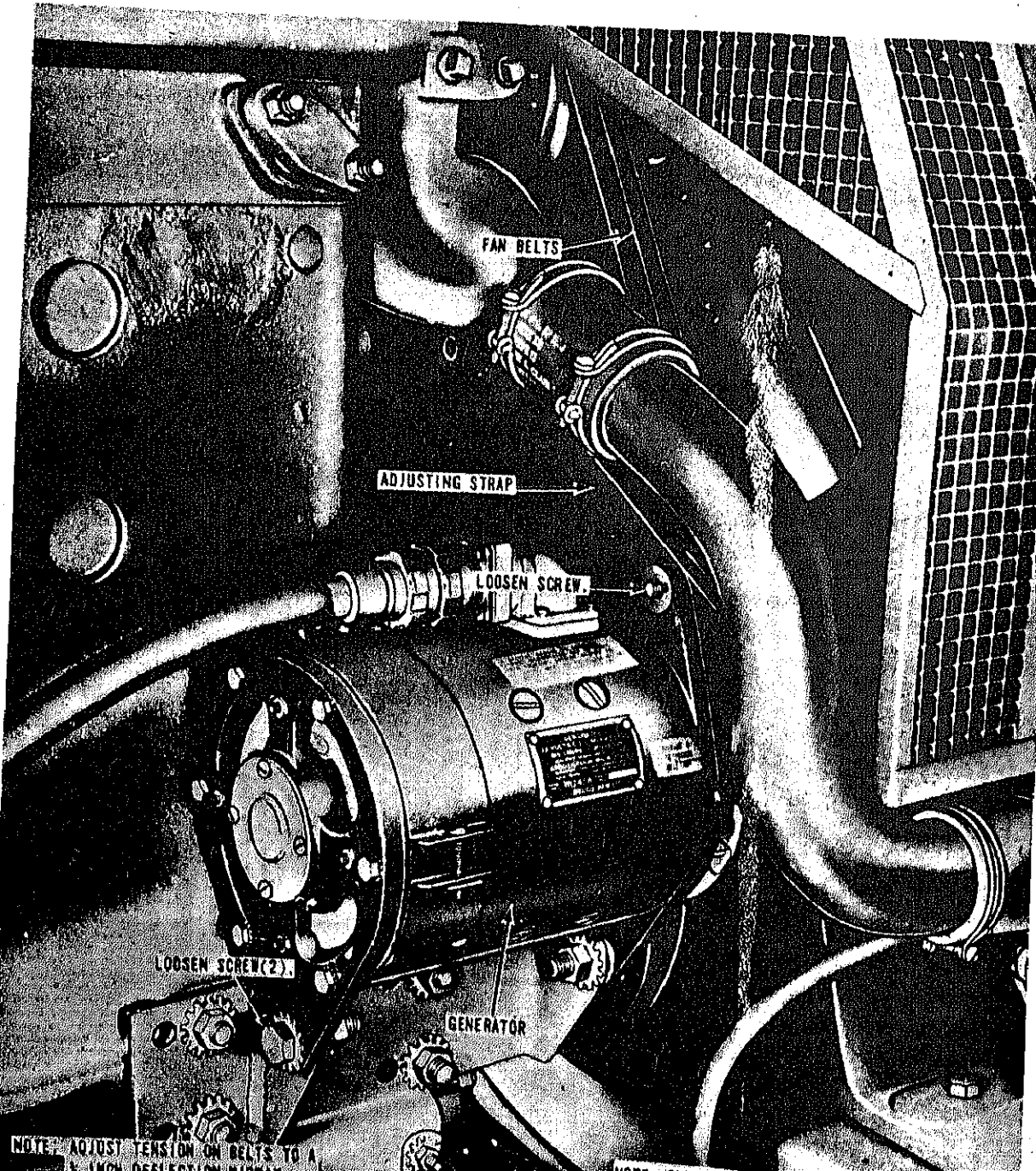
57. Fan Belts Adjustment

Adjust the fan belts as instructed 26.


NOTE: BEFORE SERVICING, START AND OPERATE THE ENGINE UNTIL NORMAL OPERATING TEMPERATURES ARE REACHED.
REMOVE CAP AND FILL WITH PROPER COOLANT.
COVER
NOTE: FILL TO 2 INCHES BELOW FILLER NECK.

A


NOTE: REMOVE DIRT AND DUST FROM RADIATOR AND SCREEN.
RADIATOR DRAIN
ENGINE BLOCK DRAIN
REMOVE DRAIN PLUG (2) AND DRAIN SYSTEM.


FAN BELTS
ADJUSTING STRAP
LOOSEN SCREW
LOOSEN SCREW(2)
GENERATOR
NOTE: ADJUST TENSION ON BELTS TO A

The engine electrical system consists of the generator, generator regulator, four 12-volt batteries, and the safety cutout control assembly and components. The batteries are connected in series-parallel to provide 24 volts for the engine electrical system. The electrical system has a negative ground.

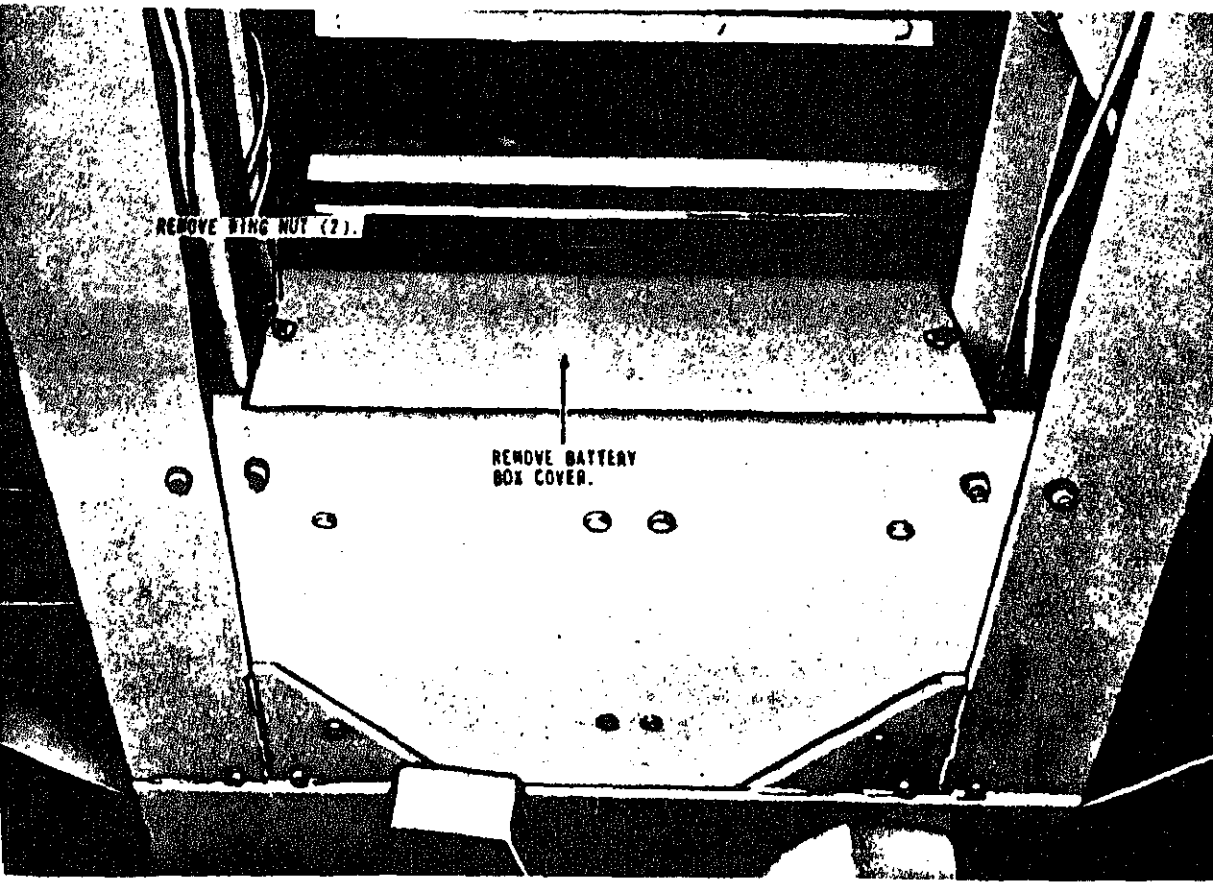
59. Batteries Service

a. Service the batteries as instructed on figure 27.

Open flame near storage batteries during soon after charging. Hydrogen gas is ge ated during charging which can cause an plosion if ignited. Do not lay tools ac battery terminals which could create a sp Avoid spilling electrolyte on hands or cloth

b. To inspect and adjust the battery cla proceed as follows:

(1) *Loosen locknut and place clamp ha* up or at right angle to battery minal.



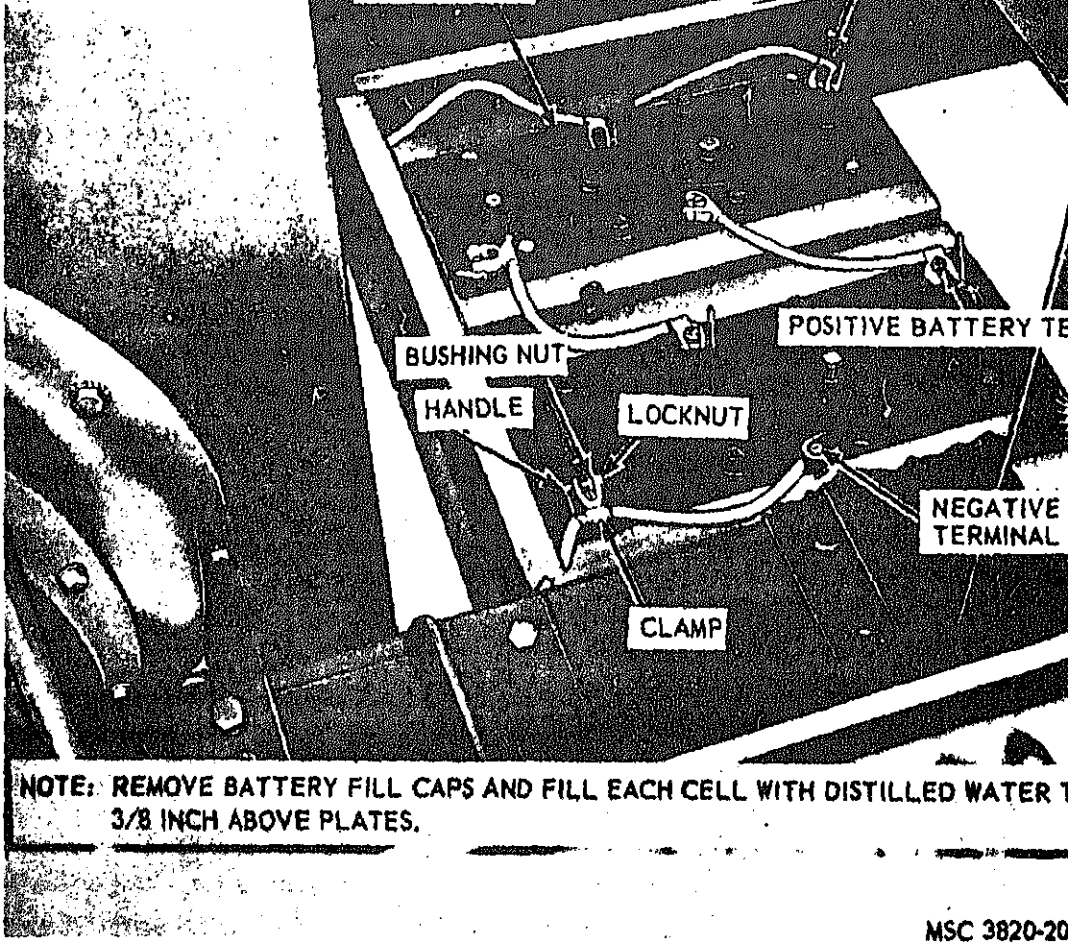


Figure 27—Continued.

(2) Remove clamps from battery terminals; inspect clamps for loose or corroded condition. Remove corrosion and coat battery terminals and clamps with grease.

(3) Install clamps on batter
Tighten bushing nut to fr
tween lug and battery ter
(4) Tighten locknut and push
until parallel with clamp.

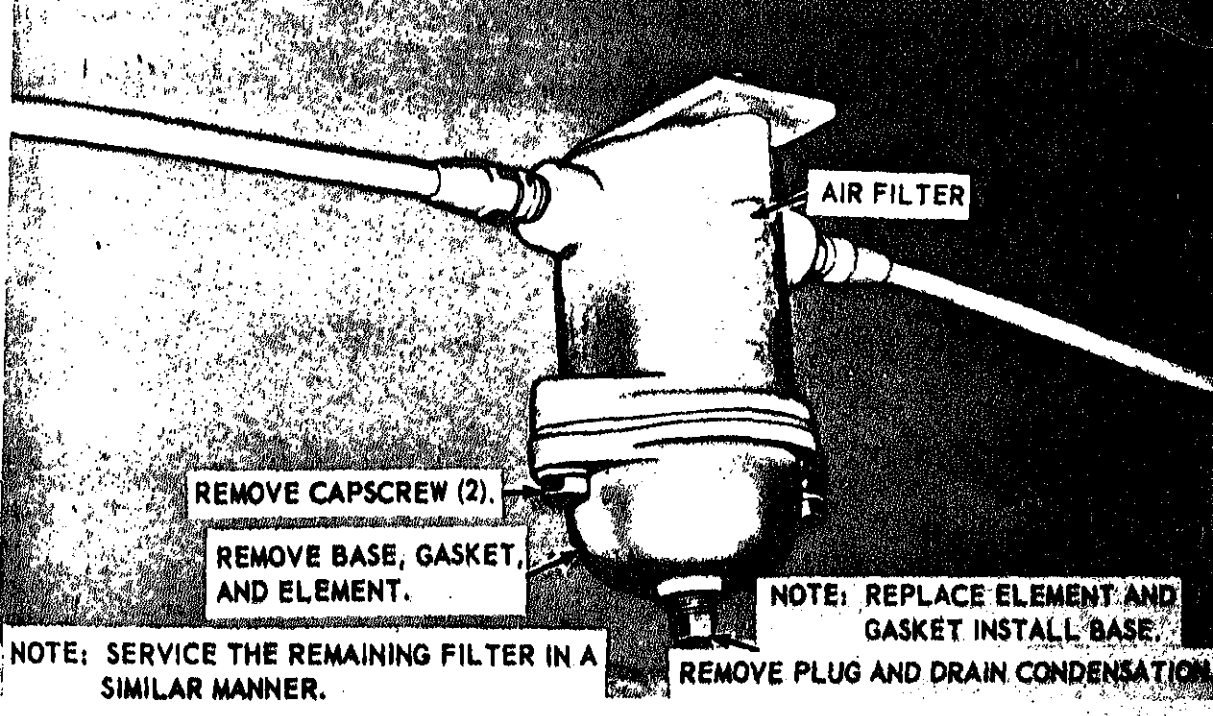
Section IX. AIRBRAKE SYSTEM

60. General

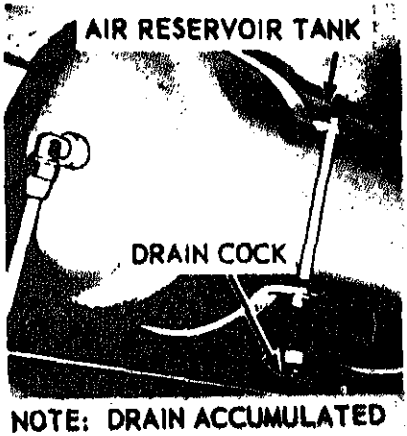
The airbrake system has two filters to re-

61. Air System Service

a. Service the air filters as instr



A



NOTE: DRAIN ACCUMULATED MOISTURE FROM TANK.

B

62. General

The engine clutch assembly engages and disengages the power from the diesel engine to the main drive belts of the crusher.

63. Engine Clutch Assembly

Adjust the engine clutch
structed on figure 29.


REMOVE PLATE
ROCKFORD
POWER TAKE-OFF
MODEL
PTA-114130-D
THE ROCKFORD CLUTCH DIVISION
SERIAL NO
CLUTCH ADJUSTMENT:
LUBRICATION:
FOR GEAR REDUCTION TYPE
NOTE: ROTATE CLUTCH ASSEMBLY UNTIL THE ADJUSTMENT LOCK IS IN AN ACCESSIBLE POSITION.
ADJUSTING RING
ADJUSTMENT LOCK

sists of a smooth roll and a grooved roll for crushing stone. It has a spring on each side to allow the smooth roll to move beyond its adjusted clearance to allow tramp iron and other items to pass through the rolls that would otherwise damage the crusher rolls. An adjusting screw, located on each side to adjust the clearance between the crusher rolls, aids in obtaining the desired grade of aggregate.

for the O-rings will be changed. In some cases it ma require several hours of operation before the O-ring seat properly against the seal plate and the oil stop leaking. A leak of 2 to 3 quarts of oil in 8 hours is n considered excessive (gearcase capacity is 50 qt) compared to the cost of replacing the O-rings. Furthe more, the O-rings are not designed as a positive-ty seal but are designed to allow seepage which will lubr cate the O-rings and prevent dust from entering th gearcase. The oil level of the gearcase should be checke each day. Refer to LO 5-3820-205-20/1-1.

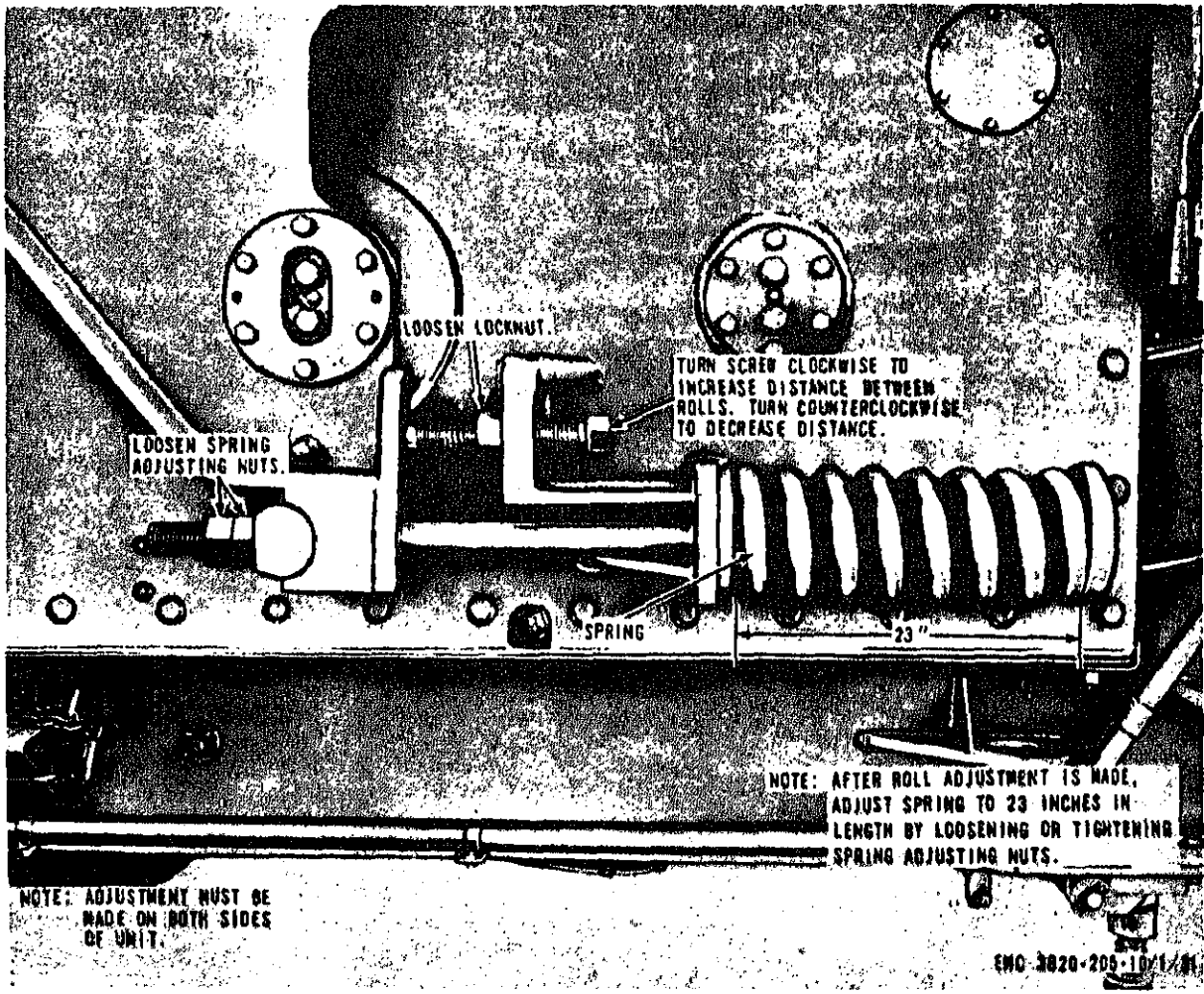


Figure 30. Crusher rolls, adjustment.

General

he vibrating screen is driven by an electric or. Power is transmitted to the vibrating en, from the electric motor, by two V-belts. vibrator screens determine the grades of regate desired. When the vibrator screens changed, the crusher roll clearance must be sted (par. 67) to the size of the largest en opening used.

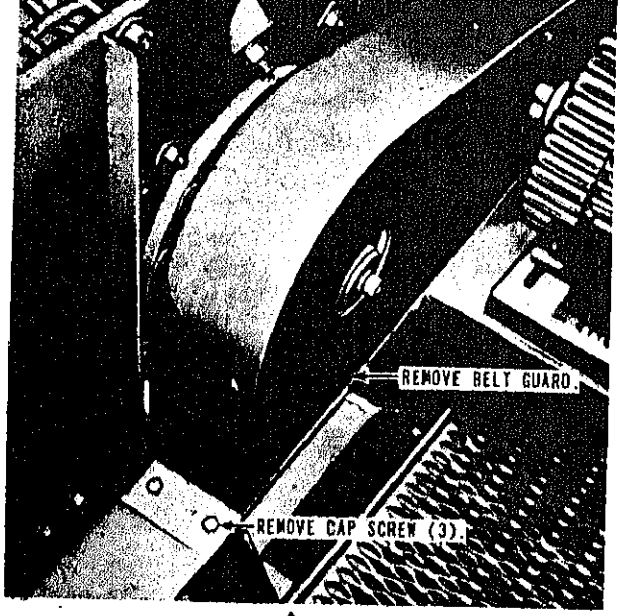
67. Vibrating Screen Drive Belts Adjustment

Adjust the vibrating screen drive belts as instructed on figure 31.

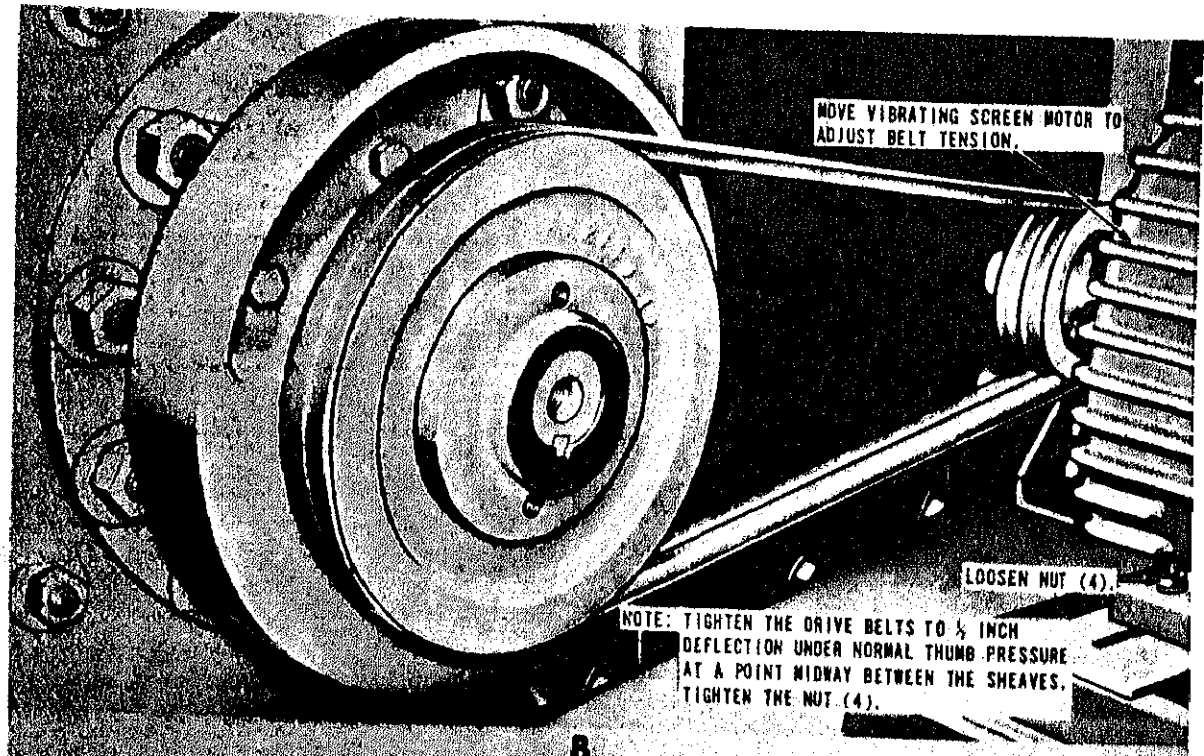
68. Vibrating Screens Replacement

Replace the vibrating screens with the proper sized screens to obtain the desired grades of aggregate in the numerical sequence as instructed on figure 32.

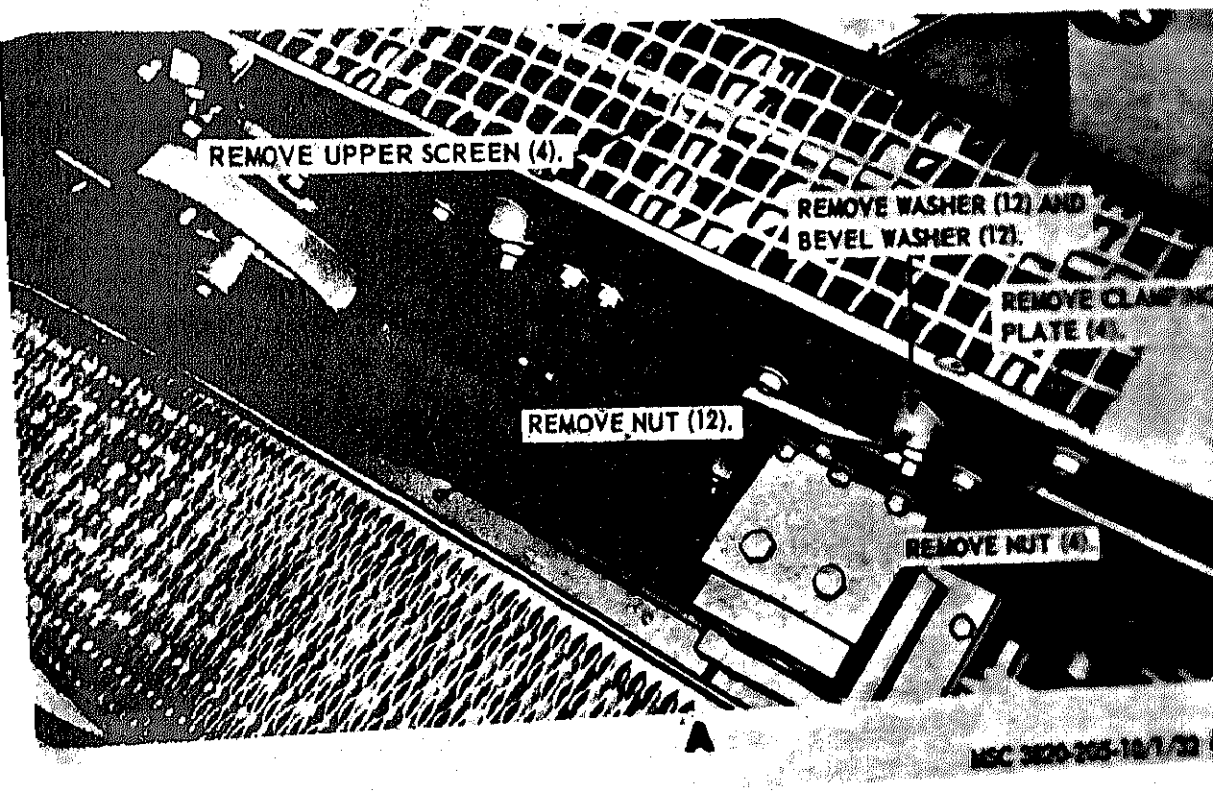
Note. Muffler and plate removal is only necessary when lower screen is to be removed.


REMOVE BELT GUARD.
REMOVE CAP SCREW (3).

A

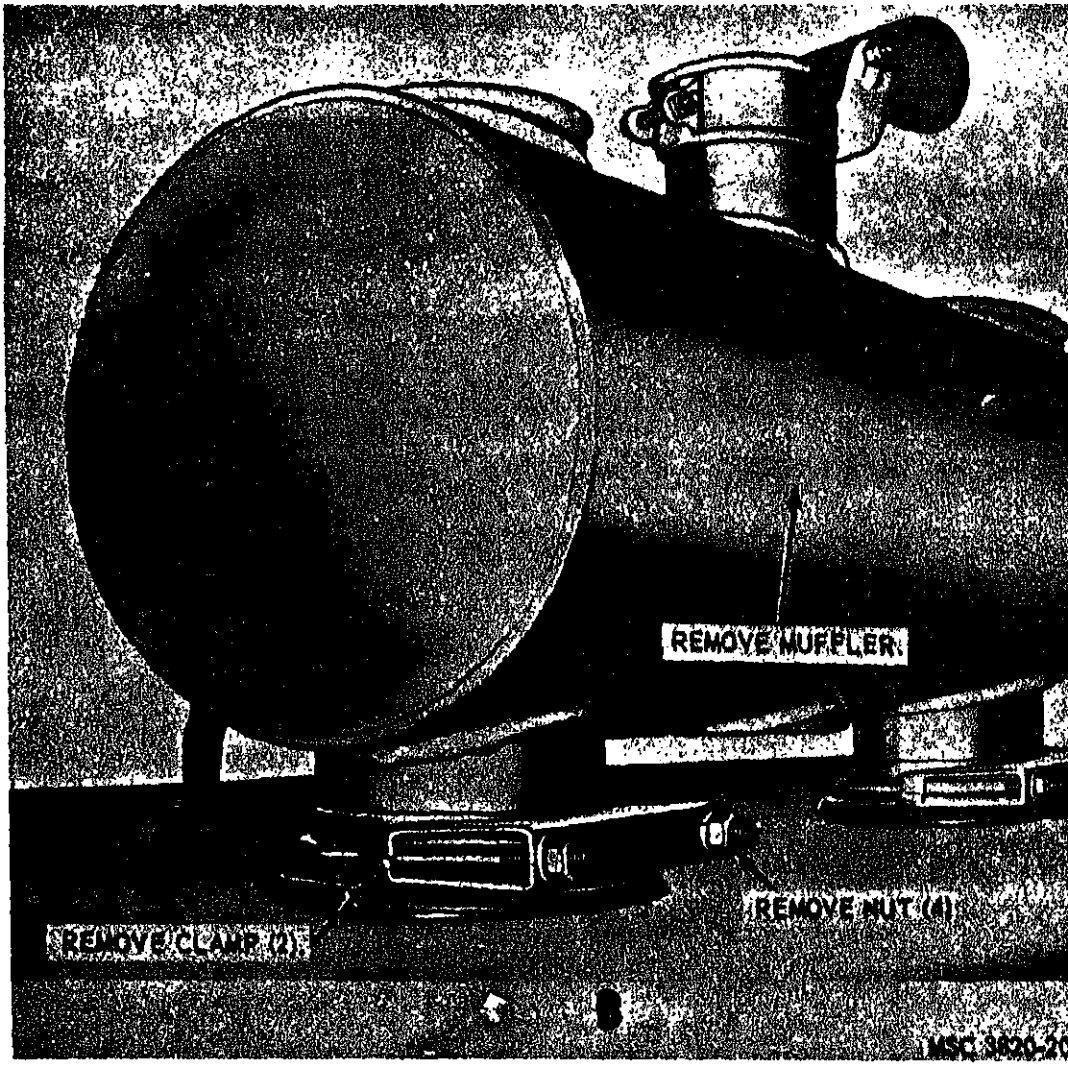

MOVE VIBRATING SCREEN MOTOR TO ADJUST BELT TENSION.
LOOSEN NUT (4).
NOTE: TIGHTEN THE DRIVE BELTS TO ½ INCH DEFLECTION UNDER NORMAL THUMB PRESSURE AT A POINT MIDWAY BETWEEN THE SHEAVES. TIGHTEN THE NUT (4).

B



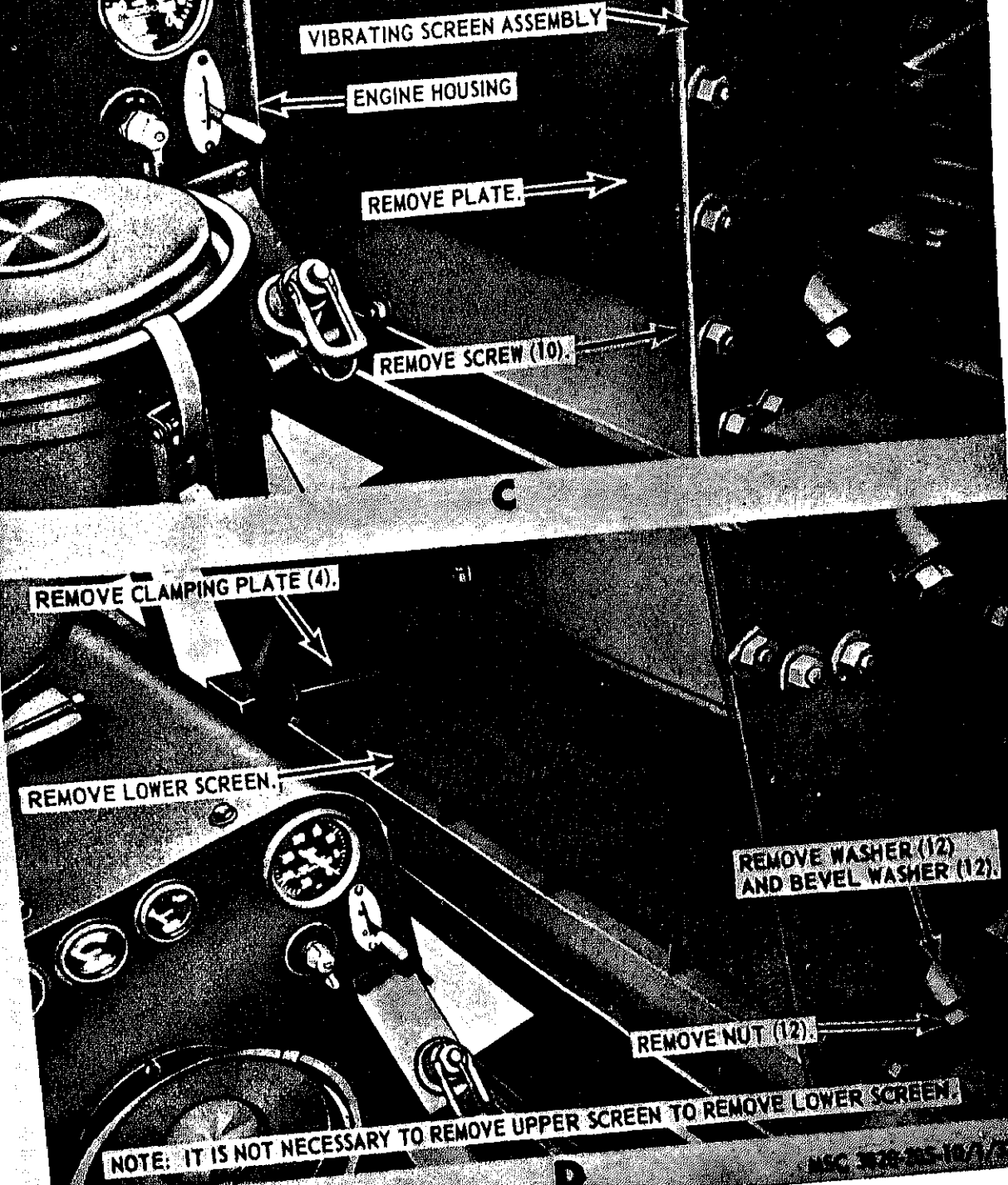
A—Upper screen removal

Figure 32. Vibrating screens, replacement.



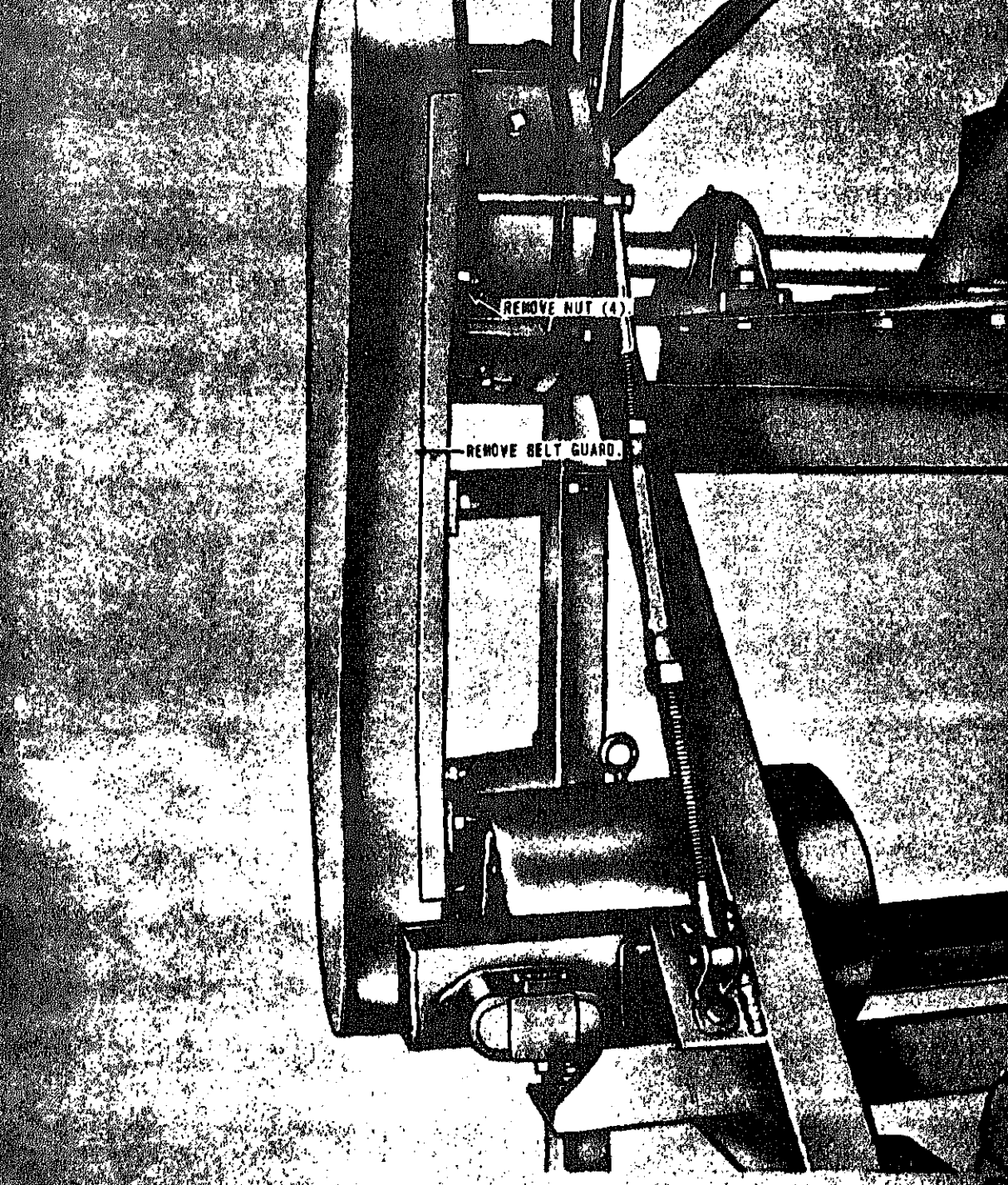
B—Muffler removal

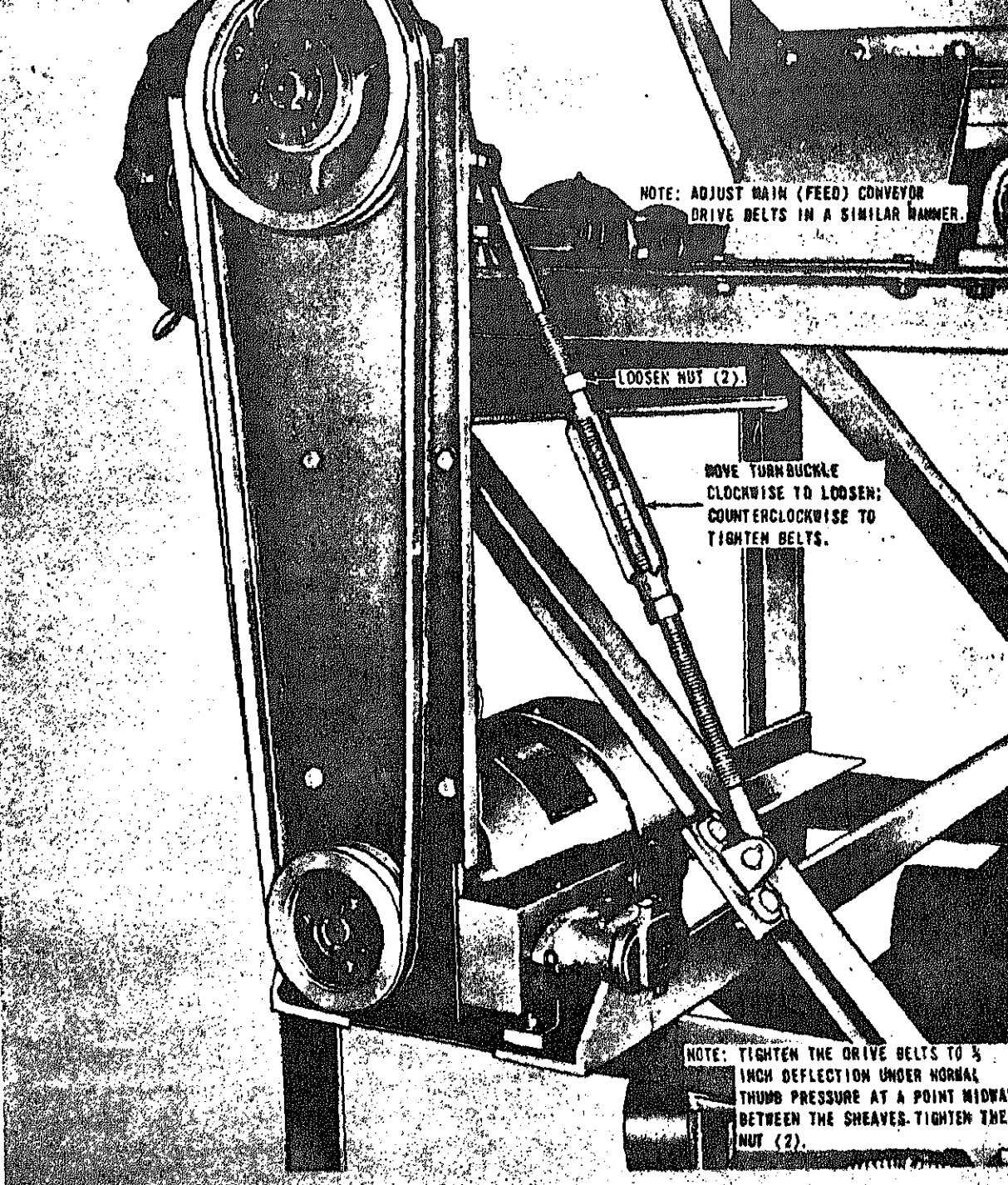
Figure 32—Continued.


VIBRATING SCREEN ASSEMBLY
ENGINE HOUSING
REMOVE PLATE.
REMOVE SCREW (10).
C
REMOVE CLAMPING PLATE (4).
REMOVE LOWER SCREEN.
REMOVE WASHER (12) AND BEVEL WASHER (12).
REMOVE NUT (12).
NOTE: IT IS NOT NECESSARY TO REMOVE UPPER SCREEN TO REMOVE LOWER SCREEN.
D

an electric motor. Power is transmitted from the electric motor to the feeder by two V-belts.

on figure 33.


REMOVE NUT (4).
REMOVE BELT GUARD.


NOTE: ADJUST MAIN (FEED) CONVEYOR DRIVE BELTS IN A SIMILAR MANNER.
LOOSEN NUT (2).
MOVE TURNBUCKLE CLOCKWISE TO LOOSEN; COUNTERCLOCKWISE TO TIGHTEN BELTS.
NOTE: TIGHTEN THE DRIVE BELTS TO ½ INCH DEFLECTION UNDER NORMAL THUMB PRESSURE AT A POINT MIDWA BETWEEN THE SHEAVES. TIGHTEN THE NUT (2).

gregate being discharged by the feeder conveyor onto the main conveyor. It is driven by an electric motor. Power is transmitted from the electric motor to the rotary elevator by two V-belts.

72. Rotary Elevator Drive Belts Adjustment

a. Remove the belt guard on the rotary elevator instructed on figure 34.

c. Install the rotary elevator drive belt guard in the same manner as the feeder drive belt guard (par. 71).

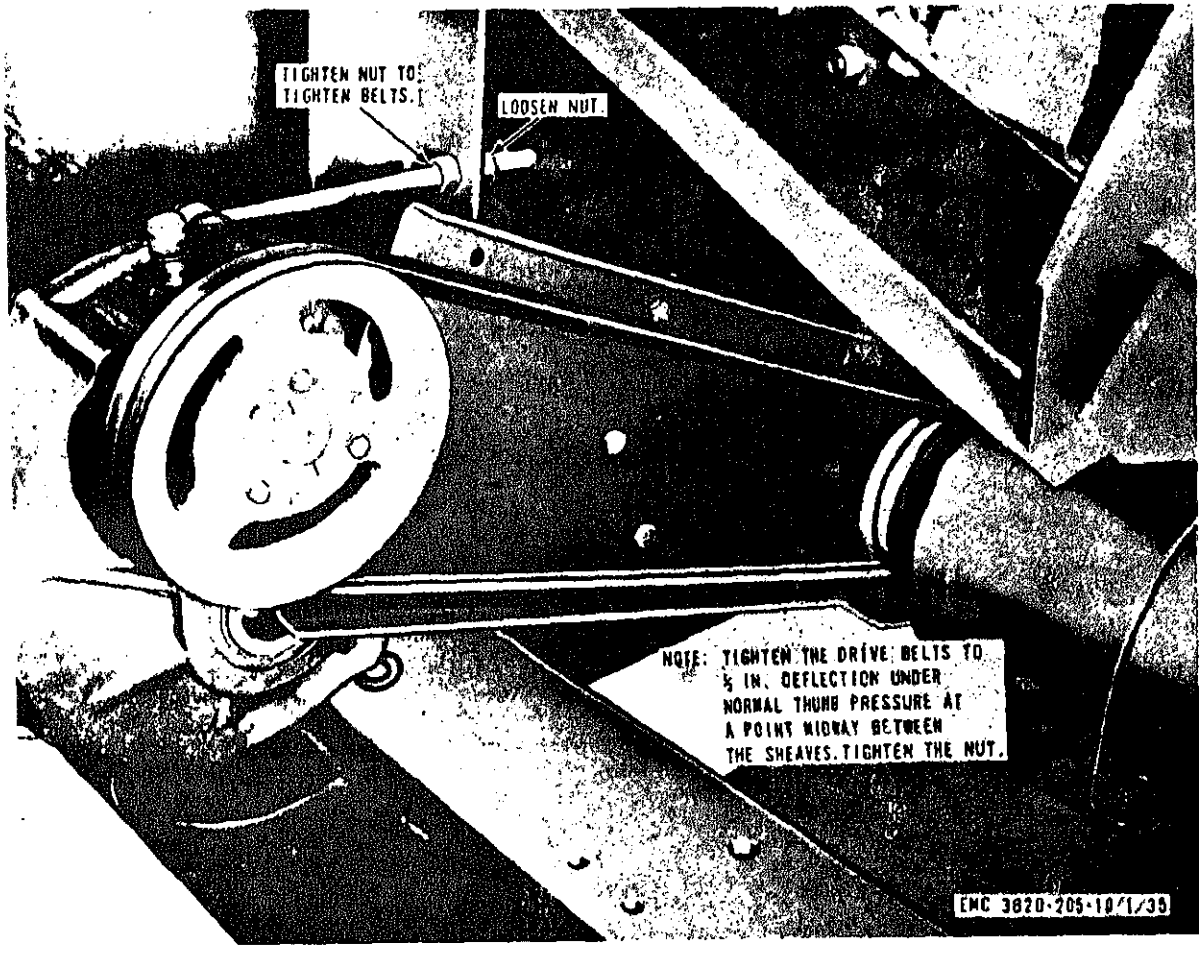


Figure 34. Rotary elevator drive belts, adjustment.

rolls into the roll elevator. It is driven by an electric motor. Power is transmitted from the electric motor to the return (under) conveyor by two V-belts.

guard from the unit as instructed on figure 3

b. Adjust the return (under) conveyor driv belts in the same manner as the feeder driv belts (par. 71).

c. Install the return (under) conveyor driv belt guard on the unit in reverse of the instruc tions on figure 36.

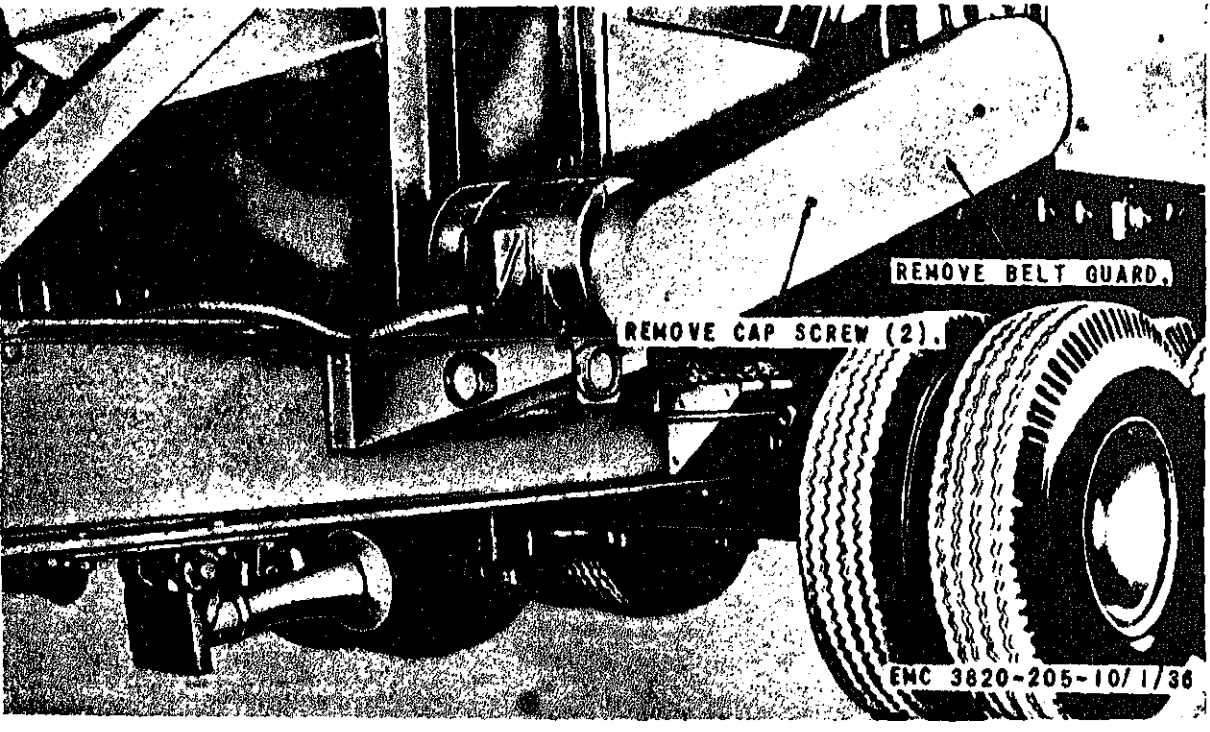


Figure 35. Return (under) conveyor drive belt guard, removal and installation.

5. General

The main (feed) conveyor assembly conveys ggregate from the feeder hopper and roll ele- ator to the vibrator screen assembly. The ain (feed) conveyor is driven by an electric otor. Power is transmitted from the electric otor to the main (feed) conveyor by two V- elts.

76. Main (Feed) Conveyor Drive Belts Adjustment

a. Remove the main (feed) conveyor dri belt guard from the unit as instructed on figu 36.

b. Adjust the main (feed) conveyor dri belts in the same manner as the feeder dri belts (par. 71).

c. Install the main (feed) conveyor dri belt guard on the unit in reverse of the instru tions on figure 36.

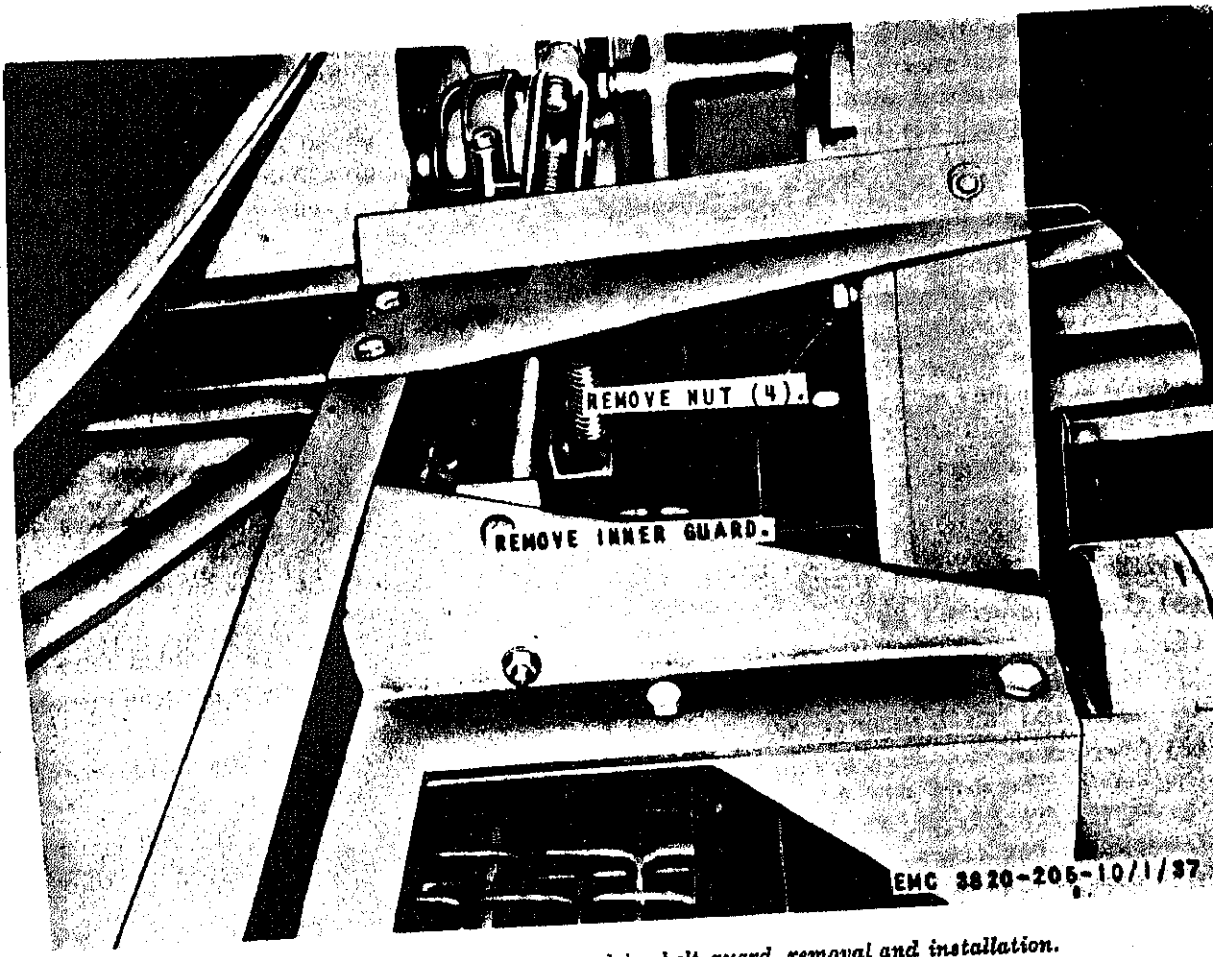


Figure 36. Main (feed) conveyor drive belt guard, removal and installation.

CHAPTER 4

DEMOLITION OF THE ROLL CRUSHER TO PREVENT ENEMY USE IN CONJUNCTION WITH THE ROLL CRUSHER

77. General

When capture or abandonment of the roll crusher to an enemy is imminent, the responsible unit commander must make the decision either to destroy the equipment or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all roll crushers and all corresponding repair parts.

78. Demolition To Render the Roll Crusher Inoperative

a. Demolition by Mechanical Means. Use sledge hammers, crowbars, picks, axes, or any other heavy tools which may be available to destroy the following:

(1) Engine block and manifolds.
(2) Engine governor, fuel pump, and water pump.
(3) Electric motors.
(4) Electric cables and wiring.
(5) Conveyor belts.
(6) The radiator and clutch housing.
(7) The electrical control boxes (open doors and smash inner components).
(8) Gearboxes.

Note. The above steps are the minimum requirements for this method.

b. Demolition by Misuse. Perform the following steps to render the roll crusher inoperative.

(1) Drain the radiator and engine crankcase. Pour sand in the engine crank-

79. Demolition by Explosives or Weapon Fire

a. Explosives. Place as many of the following charges shown in figure 37 as the situation permits and detonate them simultaneously with detonating cord and suitable detonator.

(1) One ½-pound charge on each cylinder head.
(2) One ½-pound charge between injection pump and engine block.

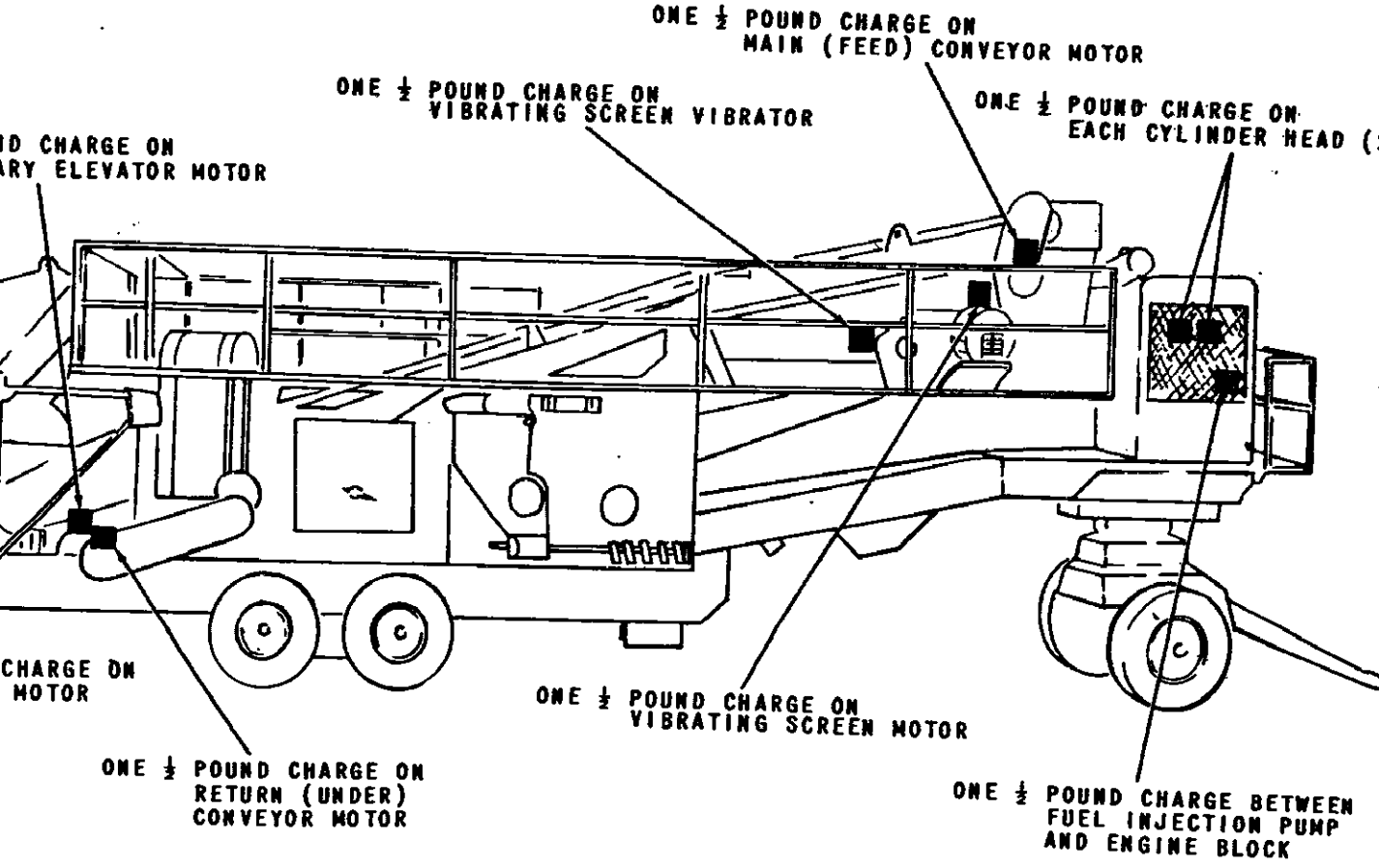
Note. The above charges are the minimum requirements for this method.

(3) One ½-pound charge on main (feed) conveyor motor.
(4) One ½-pound charge on vibrating screen vibrator.
(5) One ½-pound charge on rotary elevator motor.
(6) One ½-pound charge on feeder motor.
(7) One ½-pound charge on return (under) conveyor motor.
(8) One ½-pound charge on the vibrating screen motor.
(9) One 1-pound charge on clutch housing.
(10) Six ½-pound charges between crusher rolls.
(11) Two ½-pound charges inside rotary elevator wheel.

b. Weapons Fire. Fire on the roll crusher with the heaviest practical weapons available.

80. Other Demolition Methods

a. Scattering and Concealment. Remove as easily accessible parts such as injection pump



POUND CHARGE

el and around, the conveyor belts, tires, tric motors, fuel tank, and engine. Saturate packing with gasoline, oil, or diesel fuel ignite.

Submersion. Totally submerge the roll sher, if possible, in a body of water to pro- water damage and concealment. Salt water damage metal parts more than fresh water.

Training

ll operators should receive thorough train- to FM 5-25. Simulated destruction, using a of the methods listed above, should be include in the operator training program. It must b emphasized in training, that demolition opera tions are usually necessitated by critical situa tions when time available for carrying out de struction is limited. For this reason, it is neces sary that operators be thoroughly familiar with all methods of destruction of equipment and be able to carry out demolition instuctions without reference to this or any other manual.

1. Dictionaries of Terms and Abbreviations

AR 320–5	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations and Brevity Codes.

2. Fire Protection

TM 5–687	Repairs and Utilities: Fire Protection Equipment and Appliances; Inspections, Operations, and Preventive Maintenance.
TM 9–1799	Ordnance Maintenance: Fire Extinguishers.

3. Lubrication

LO 5–3820–205–20/1–1	Lubrication Order.

4. Painting

TM 9–1213	Painting Instructions for Field Use.

5. Preventive Maintenance

AR 750–5	Maintenance Responsibilities and Shop Operation.
TM 9–1870–1	Care and Maintenance of Pneumatic Tires.
TM 9–6140–200–15	Storage Batteries, Lead-Acid Type.
TM 38–750	The Army Equipment Records System and Procedures.

6. Publication Indexes

DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 4, 6, 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Orders.

7. Training Aids

FM 5–25	Explosives and Demolitions.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–30	Military Symbols.

8. Supply Publications

SM 10 C9100–SL	Petroleum, Petroleum-Base Products, and Related Material.
SM 3–C6800–ML	List of Standard Lubricants, Hydraulic Fluids, Liquid Fuels, and Preservative Material Used by the Army.

APPENDIX II

BASIC ISSUE ITEMS LIST AND MAINTENANCE AND OPERATING SUPPLIES

Section I. INTRODUCTION

1. General

Section II lists the accessories, tools, and publications required in 1st echelon maintenance and operation, initially issued with, or authorized for the roll crusher. Section III lists the maintenance and operating supplies required for initial operation.

2. Explanation of Columns Contained in Section II

a. Source Codes. The information provided each column is as follows:

(1) *Materiel.* This column lists the basic materiel code number of the supply service assigned responsibility for the part. Blank spaces denote supply responsibility of the preparaing agency. Other basic materiel code numbers are—

3—Chemical Materiel
9—Ordnance Materiel
10—Quartermaster Materiel
12—Adjutant General

(2) *Source.* The selection status and source of supply for each part are indicated by one of the following code symbols:

(*a*) P—applied to high-mortality repair parts which are stocked in or supplied from the supply service depot system, and authorized for use at indicated maintenance echelons.

(*b*) P1—applied to repair parts which

stall, or manufacture the part is indicated by the following code symbol

O—Organizational Maintenance
(1st and 2d Echelon)

b. Federal Stock Numbers. The Federal stock number will be shown in this column, and will be used for requisitioning purposes.

c. Description.

(1) The item name and a brief description of the part are shown.

(2) A five-digit Federal supply code for manufacturers and or other supply services is shown in parentheses followed by the manufacturer's part number. This number shall be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock number column.

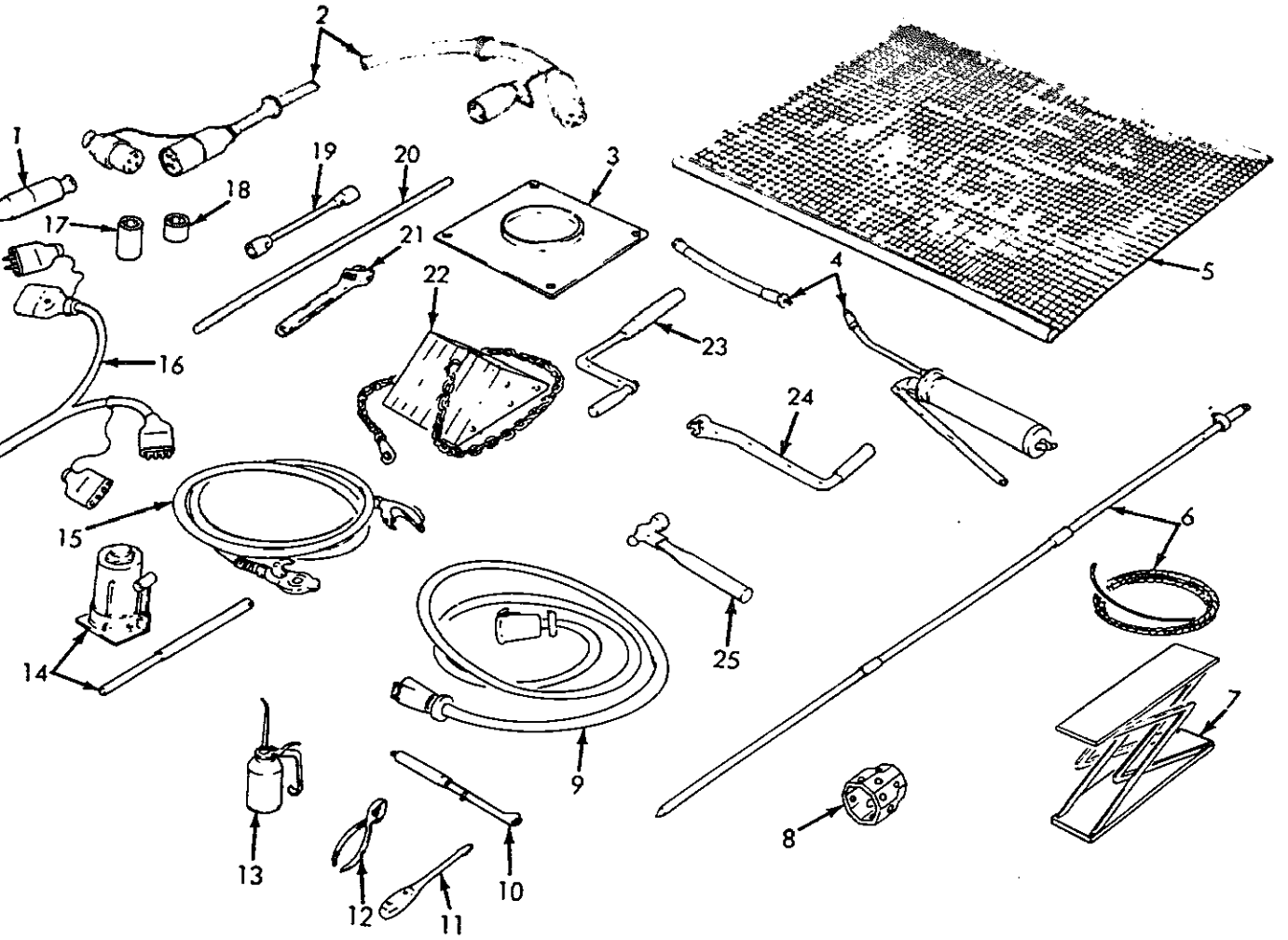
Example: (90129) X861724.

d. Unit of Issue. If no abbreviation is shown in this column, the unit of issue is "each".

e. Quantity Authorized. This column lists the quantities of repair parts, accessories, tools, or publications authorized for issue to the equipment operator or crew as required.

f. Quantity Issued with Equipment. This column lists the quantities of repair parts, accesories, tools, or publications that are initially issued with each item of equipment. Those indicated by an asterisk are to be requisitioned through normal supply channels as required.

g. Illustrations. This column is subdivided into two columns which provide the following information.


1
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4 Hand grease gun
5 Wire screen
6 *Ground rod assembly*
7 Trestle
8 Wheel bearing wrench
9 Wiring harness
13 Hand oiler
14 Hand hydraulic jack
15 Service hose
16 Feeder power cable
17 Deep style socket
21 Adjustable wrench
22 Block chock assembly
23 Handcrank, cable reel
24 Handcrank, starting
25 Hand hammer

Figure 38.—Continued

3. Federal Supply Code for Manufacturers

14351 ..... Continental Motors Corp.
92858 ..... Hannay, Clifford B. & Son, Inc.
00000 ..... Ordnance Corps
18990 ..... Eagle Crusher Co.
63477 ..... Wagner Electric Corp.
90129 ..... Joy Manufacturer Co. Electric Products
55719 ..... Snap-on Tool Corp. Div.

4. Explanation of Columns Contained in Section III

a. Item. This column contains numerical sequenced item numbers, assigned to each component application, to facilitate reference.

b. Component Application. This column identifies the component application of each maintenance or operating supply item.

c. Source of Supply. This column lists the basic materiel code number of the supply service assigned responsibility for the item. Blank spaces denote supply responsibility of the preparing agency. Other basic materiel code numbers are—

9—Ordnance Materiel
10—Quartermaster Materiel
11—Signal Materiel
12—Adjutant General
55—Transportation Materiel

d. Federal Stock Number. The Federal stock number will be shown in this column and will be used for requisitioning purposes.

e. Description. The item and a brief description are shown.

f. Quantity Required for Initial Operation. This column lists the quantity of each maintenance or operation supply item required for initial operation of the equipment.

g. Quantity Required for 8 Hours Operation. Quantities listed represent the estimated requirements for an average 8 hours of operation.

h. Notes. This column contains informative notes keyed to data appearing in the preceding column.

					GROUP 31—BASIC ISSUE ITEMS MANUFACTURER INSTALLED						
					3100—BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED						
	P	O		5140-057-2554	BATTERY, STORAGE: 12 v, 6 cell (Repair Parts Manual Group 0612).			4	4		
	P	O			BLOCK, CHOCK ASSEMBLY: w/ chain (00000) 8343584 (Repair Parts Manual Group 3100).			4	4	38	
	P	O			CABLE, POWER: pigtail (90129) X861724 (Repair Parts Manual Group 2202).			1	1	38	
	P	O			CABLE, POWER: 100 feet long (90129) X8617-25 (Repair Parts Manual Group 2202).			1	1	38	
	P	O			CABLE, FEEDER POWER: 75 feet long (18990) 20610.			1	1	38	
	P1	O		7520-559-9618	CASE: operation and maintenance publications, cotton duck, water repellent and mildew resistant.			1	1		
	X2	O			CRANK, HAND: cable reel (29858) H-10616 A-32 (Repair Parts Manual Group 1808).			1	1	38	
	X2	O			CRANK, HAND: starting (14351) 31-R02020 (Repair Parts Manual Group 0107).			1	1	38	
					DEPARTMENT OF THE ARMY LUBRICATION ORDER LO 5-3820-205-20/1-1.			1	1		
					DEPARTMENT OF THE ARMY OPERATOR'S MANUAL TM 5-3820-205-10/1.			2	2		
					DEPARTMENT OF THE ARMY ORGANIZATIONAL MAINTENANCE MANUAL TM 5-3820-205-20/1.			2	2		
					DEPARTMENT OF THE ARMY ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOL LIST TM 5-3820-205-20P/1.			2	2		
	P	O		6810-240-9354	ELECTROLYTE, SULPHURIC ACID (Repair Parts Manual Group 0612).	Gal		8	8		
	P1	O		4210-383-7129	EXTINGUISHER, FIRE, CARBON DIOXIDE: charged, hand; nonshatterable cylinder; permanent shutoff valve; squeeze-grip or trigger control; 5-lb MIL Spec E-468, type I, class 1 (Repair Parts Manual Group 7603).			1	1		
	P	O			HARNESS, WIRING: trailer coupling (09000) 7728815 (Repair Parts Manual Group 2202).			1	1	38	
	P	O									

Source codes				Federal stock No.	Description	Unit of issue	Expendability	Quantity authorized	Quantity issued with equipment	H Fi u
Material	Source	Maintenance	Recoverability							
	P	O	-----	----------	HOSE, SERVICE: (63477) AD2611 (Repair Parts Manual Group 2202).	-----	-----	1	1	
	P	O	-----	----------	PAD, JACK (18990) 20310 (Repair Parts Manual Group 3100).	-----	-----	4	4	
	P	O	-----	----------	ROD ASSEMBLY, GROUND: (18990) 30162 (Repair Parts Manual Group 3100).	-----	-----	3	3	
	P	O	-----	3820-730-5939	SCREEN, ROLLER: ¼ in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5938	SCREEN, ROLLER: ⅜ in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5937	SCREEN, ROLLER: ½ in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5936	SCREEN, ROLLER: ¾ in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5935	SCREEN, ROLLER: 1 in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5934	SCREEN, ROLLER: 1½ in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5933	SCREEN, ROLLER: 2 in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
	P	O	-----	3820-730-5932	SCREEN, ROLLER: 2½ in. mesh (Repair Parts Manual Group 7528).	-----	-----	2	2	
					GROUP 32—BASIC ISSUE ITEMS TROOP INSTALLED					
					3200—BASIC ISSUE ITEMS TROOP INSTALLED OR AUTHORIZED					
10	P	O	-----	5120-277-8079	EXTENSION, SOCKET WRENCH: 16 in., ¾ in. square drive.	-----	-----	1	•	
9	P	O	-----	4910-273-3662	GAGE, TIRE PRESSURE: calibrations 10- to 160-lb range.	-----	-----	1	•	
10	P	O	-----	4930-360-2801	GREASE GUN, HAND: lever operated, 16-oz capacity.	-----	-----	1	•	
10	P	O	-----	5120-243-2063	HAMMER, HAND: machinist, ball-peen, ½-lb head.	-----	-----	1	•	
10	P	O	-----	5120-240-5368	HANDLE, SOCKET WRENCH: 18½ in., ¾ in. sq drive.	-----	-----	1	•	
10	P	O	-----	5120-244-7329	JACK, HYDRAULIC, HAND: self contained, single pump, w/screw extension FED GGG-J-51, type VII, class 2, style B, 5-ton capacity.	-----	-----	1	•	
10	P	O	-----	4930-260-9166	OILER, HAND: 16-oz capacity	-----	-----	1	•	
10	P	O	-----	5120-223-7396	PLIERS, SLIP JOINT: straight nose,	-----	-----	1	•	

Ma		Ma te rial	Re cover ability	Federal stock No.	Description	Unit of issue	Ex pend ability	ity au thor ized	ity issued with equip ment	Fig ure	Item
	P	O		4910-262-0392	TRESTLE, MOTOR VEHICLE MAINTENANCE: 5 ton capacity, adjustable type 15 in. closed h, 25 in. extended h, 12 in. lg o/a 10 in. w o/a base; MIL SPEC T-14521 size 5 ton.			1	*	38	7
	P	O		5120-240-5328	WRENCH, OPEN END, ADJUSTABLE: opening 0 to 0.947, 8 in. long.			1	*	38	21
	P	O		5120-240-1414	WRENCH, OPEN END, ADJUSTABLE: single-head type, 18 in. FED GG-631, type 1.			1	*	38	21
	P	O		5120-277-6470	WRENCH, OPEN END, ADJUSTABLE: single-head type, 36 in.			1	*	38	21
	P	O		5120-393-0560	WRENCH WHEEL BEARING			1	*	38	8

Section III. MAINTENANCE AND OPERATING SUPPLIES

Component application	Source of supply	Federal stock No.	Description	Quantity required for initial operation	Quantity required for 8 hours operation	Notes
RANKCASE			OIL, LUBRICATING: 55-gal drum as follows:			(1) Includes quantity engine oil system
	10	9150-265-9436(2)	OE 30	24 qt	(3)	Crankcase—18 q
	10	9150-265-9429(2)	OE 10	24 qt	(3)	Oil Filter—6 qts
	10	9150-242-7604(2)	OES	24 qt	(3)	(2) See SM 10 C910
ANK, FUEL			FUEL OIL, DIESEL: bulk as follows:			tional data and procedure.
	10	9140-286-5283(2)	DF-A	100 gal (5)	76 gal (6)	(3) See LO 5-3820-
	10	9140-286-5286(2)	DF-1	100 gal (5)	76 gal (6)	grade applicati
	10	9140-286-5294(2)	DF-2	100 gal (5)	76 gal (6)	plenishment inte
NGINE STARTING AIDS	10	2990-355-6377	CAPSULE, METAL: pressure primed (1 MO-10)	1 (8)		(4) Use oil as prescri
						(5) Tank capacity.
ADIATOR			WATER:	70 qt	(7)	(6) Average fuel co 9.5 gal per hour operation.
			ANTIFREEZE: 55-gal drums as follows:			
	9	6850-293-1990	Ethylene Glycol			(7) Refer to organiz tenance for quant
	9	6850-174-1806	Compound Arctic			temperatures, spe
GEAR ASSEMBLY CON- OR DRIVE			OIL, LUBRICATING: (4)	5 qt	(3)	and replenishment
RN CONVEYOR GEAR DUCER			OIL, LUBRICATING: (4)	4 qt	(3)	(8) Quantity indicate mum required fo
LEVATING WHEEL GEAR DUCER			OIL, LUBRICATING: (4)	2 qt	(3)	Start when tem below 40° F.
GEAR ASSEMBLY, DER DRIVE			OIL, LUBRICATING: (4)	2 qt	(3)	
CRUSHER FRAMES			OIL, LUBRICATING, GEAR: 55-gal drums as follows:			
	10	9150-577-5848	GO 140	92 qt	(3)	
	10	9150-577-5845	GO 90	92 qt	(3)	
	10	9150-257-5442	GOS	92 qt	(3)	
SE POINTS			GREASE, AUTOMOTIVE AND ARTILLERY: 35-lb pail			
	10	9150-190-0907	GAA	4-lb	1-lb	

INDEX

EARLE G. WHEEL
General, United Stat
Chief of Staff.

Official:
J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution:

Active Army:

USASA (2)
ACSI (1)
DCSLOG (1)
CNGB (1)
TSG (1)
CofEngrs (3)
CSigO (1)
CofT (1)
CofSptS (1)
Army Maint Bd (1)
USAARTYBD (2)
USAARMBD (2)
USAARMBD (2)
USAIB (2)
USAADBD (2)
USAAESWBD (2)
USAAVNBD (2)
USCONARC (3)
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  USASETAF (2)
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MAAG (1)
JBUSMC (1)
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  5-115 (2)
  5-117 (2)
  5-237 (5)
  5-262 (5)
  5-267 (1)
  5-278 (5)
  5-279 (2)
  5-500 (EA, EB, GB) (2)

NG: None.

USAR: Same as Active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.